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COMPUTERWORLD

NCR to boost MPP system with help from Sybase query server

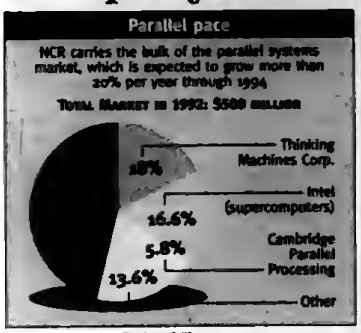
By Thomas Hoffman and Kim S. Nash

■ NCR Corp. will this week show off several performance enhancements to its 3600 massively parallel processor. The effort will pump more life into the system while customers wait for NCR's twice-delayed next-generation MPP, now scheduled to hit the market in mid-1995.

The announcement will include the disclosure by Sybase, Inc. that it will begin beta shipments of its Navigation Server, database technology designed to manage large-scale client/server data queries for the 3600 and other MPP machines. NCR will also detail improvements to its Teradata database server and reveal an enhanced upgrade path to the NCR 3700, NCR's next-generation MPP machine (see box page t2).

NCR's strategy to deliver performance boosts to the NCR 3600 seeks to maintain customer satisfaction with the scalable environment before the NCR 3700 — and competitive products from IBM, Unisys Corp. and other vendors — reach the market in 1995, said

NCR, *page 12*



Source: Dataquest, Inc., San Jose, Calif.

IBM this week will unfurl its moderately parallel computer. See story page 12.

NT to blend in X.500

Pending Siemens deal to provide directory services

By Lynda Radosevich and Ed Scannell

Microsoft Corp. will add X.500 directory service capabilities to its Windows NT Advanced Server next year through a licensing agreement with Siemens AG, according to sources close to the companies.

The goal behind the partnership is to enable Microsoft to provide a common directory service for messaging and other network applications similar to what Banyan Systems, Inc. offers with its StreetTalk directory. The pact is expected to be announced by year's end.

X.500 directory services include a hierarchical information tree across different servers that enable each entry to have a unique name.

Microsoft hopes that by beefing up NT Advanced Server's directory capabilities, the network will be better equipped to compete with Banyan's Vines, Novell, Inc.'s NetWare Directory Services and IBM's LAN Server, the sources said.

X.500 is the Open Systems Interconnect standard for distributed directory services. Although associated with the X.400 electronic messaging protocol, the X.500 directory information base can contain information about users, devices and network resources.

Needed support

Without X.500 support, some observers said they believe Microsoft will be unable to provide the glue that large corporate accounts need to build cohesive enterprise-wide strategies and solutions.

"Announcing X.500 directory services [will] put Microsoft in the enterprise game. Given what the competition has, they can't go very far without it," said one analyst familiar with the company's plans.

The X.500 addition "will be worthwhile to take a look at, especially if it hooks into the mail system," said Bob Holmes, a research technologist at Southern California Gas Co. in Los Angeles.

NT, *page 15*

Will API wars spur wireless chaos or use?

By Lynda Radosevich and Joanie M. Wexler

In a frenzy to fuel wireless network use, key industry players are colliding in their efforts to serve up "standard" application programming interfaces that span multiple network types.

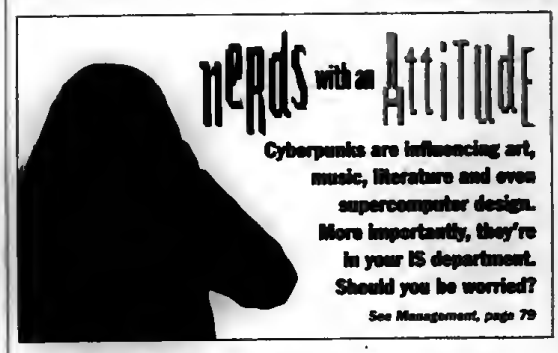
Conflicting APIs surfacing from such disparate sources as Motorola, Inc., RadioMail Corp. and vendor consortia could quickly spur wireless use in vertical or contained environments by easing application development. But they could also cause application interoperability problems for users looking for broader connectivity, analysts said.

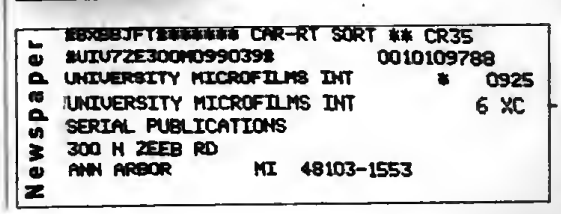
API efforts in the works today from the likes of RadioMail, which announced a multinetwork interface last week at the E-Mail World show in Santa Clara, Calif., are good news for Donna Farchione.

A partner at systems integrator Strategic Communications Corp. in Bethesda, Md., Farchione said she does not want to worry about the underlying networks during application development. She said the RadioMail API will eliminate network-specific concerns in her company's efforts to develop a wireless service for a large San Francisco-based bank.

The service, which will enter pilot stage by January, will allow wholesale residential real estate loan brokers to access lending information and enter sales orders using what-

API wars, *page 14*





PC management

Cheaper, sleeker integrated PCs gathering steam

By Michael Fitzgerald

Integration of key PC technologies — such as graphics, networking, SCSI and sound — onto the motherboard is coming to the desktop in a big way. And its impact may come sooner than expected.

The potential payoff for PC managers includes better memory management, increased functionality, fewer configuration headaches and lower costs. How much lower will depend on system configuration and vendor cost structure, according to Randal Giusto, a senior analyst at WorkGroup Technologies, Inc. in Hampton, N.H.

> A single PC costs $2,000 a year to administer and support, according to a Gartner Group estimate.

For example, PC managers who want to increase their PCs' functionality currently have to add cards, which typically range in price from less than $100 to over $1,000. But tomorrow's PCs will either have these functions on the motherboard or will give users the option of adding them on the motherboard.

Integrated parts also mean lower manufacturing costs that will likely be passed on to users — through smaller systems, for example — and, in some cases,

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Jane Metka

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Executive Briefing

Remote network management is a headache. In a recent study, 70% of the 180 companies contacted by research firm **Business Research Group** identified management of distributed computing as a critical concern. *Page 59*

Is it any wonder some folks decide to just stay put? That's exactly what chemical company **Rodel** did recently — settling for an upgrade to its HP 3000 mini — after flirting briefly with Unix. Reason: HP promises Unix and MPE will merge in a couple of years, and the company figures it is safer to stick with what it knows than to take a risk on just-emerging systems management tools for Unix. *Page 69*

Or that others seek some outside assistance? There's lots of activity on the outsourcing front these days. After listening to informal proposals for close to a year, **Chrysler** is reportedly about to issue a **formal invitation** to bidders that want to help it develop and manage a massive LAN, linking some 13,000 PCs throughout the organization. *Page 6* In the meantime, **Nielsen** and **EDS** may qualify for a speed award. Six weeks after EDS won the contract last July, Neilsen's Green Bay, Wis., data center was shuttered and EDS was processing product and sales data for Nielsen market reports. *Page 67* But the prize for most innovative pricing agreement may belong to the **Canada Post** and **SHL Systemhouse, Inc.** contract, which established a "fee-for-service" structure similar to that of a monthly telephone bill. *Page 25*

Deliver us from gateways was Internet pioneer **Einar Stefferud's** message in his address to attendees of **E-Mail World**. Using gateways to translate messages into different formats at each messaging system intersection is not acceptable, he said, and customers ought to demand a way of sending messages intact through all their systems. *Page 14*

Mixed messaging that does work: E-Mail World saw the introduction of a scanner/software combination that permits documents with graphics to be scanned and dropped into E-mail and computer-based fax software. *Page 14*

Tailored training gains popularity as companies try to adapt to the very different requirements of new system development tools and methods. 3M even links technical training with specific projects. *Page 92*

One good subject for training? Windows GUI development might be a good bet. Columnist David Bernard points out that while Windows application development has become much easier, it's still very possible to mess up on interface design. *Page 75*

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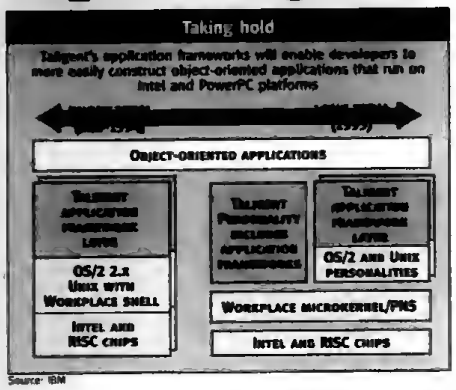
OS/2 developers to get first whiff of Taligent

By Ed Scannell and Jim Daly

With IBM ready to roll out its first set of application frameworks from its Taligent, Inc. joint venture with Apple Computer, Inc., software developers have little knowledge of what the technology can do.

This first set of frameworks, scheduled to be sent to a limited number of developers next month, gives OS/2 developers their first taste of the Taligent technology. It will also make it easier for them to port their existing applications to multiple platforms including IBM's AIX and Windows [CW, July 26]. Broader distribution will occur early next year.

Meanwhile, IBM will release a second set of applicatioa frameworks in late 1994 that exposes the entire Taligent programming model to developers, who can then sculpt applications that take full advantage of Taligent's interface and that inherently work in a collaborative fashion with any other application.



Source: IBM

Mix-and-match technology

IBM will also use next week's Comdex/Fall '93 to show how some of the stand-alone Taligent components can be mixed and matched with an array of existing programs to piece together applications that collaborate across multiple platforms.

"We'll be showing off the stand-alone components used in a cross-platform [graphical user interface] framework and combined with [IBM's Systems Object Model] and [IBM's Distributed Object Model]," said Kathy Bohrer, IBM's lead architect for object frameworks.

Although the company will deliver application frameworks first, Taligent remains committed to producing a shrink-wrapped version of the full Taligent operating system in the 1995 time frame, noted Mike Potel, Taligent's vice president of technology development. "Soth projects are proceeding in parallel," he said.

Application developers, however, have been left to uncover what specific advantages they will gain over competitors by incorporating the Taligent technologies.

"Once word about the frameworks' content gets out, we can then stew about what we should take advantage of and how," said Randell Flint, president of Sundial Systems Corp., a Seat Beach, Calif., OS/2 application developer.

With the introductioo of Apple's PowerPC platform looming, Taligent officials have been particularly circumspect with key Apple developers. "The last thing Apple wants to do is add another choice for developers to think about," said Pieter Hartsook, editor of the Macintosh-specific "Hartsook Letter" in Alameda, Calif. "I bet they won't say peep about Taligent until after the PowerPC Macs come out early next year."

Many Apple developers said their chief concern is getting their applications over to the PowerPC platform, but they are still curious about Taligeot.

"You talk to devetopers who might be interested, and it seems that nobody has put this thing on the front burner at this point," said Mark Macgillivray, managing director at H&M Consulting in Sunnyvale, Calif.

Because Taligent is not expected to have its full platform available uotil t995 at the earliest, developers are not panicking. "I don't think it will be any hig thing if we're not there on Day 1 with a Taligent product," said Chuck Boesenberg, president and chief executive officer of Central Point Software, Inc. in Beaverton, Ore.

Not that Apple developers are twiddling their thumbs. Most are up to their ears working on versions of Macintosh System 7 applications for the upcoming PowerPC line, and they're cautious about where they put their money and manpower.

"Look at the people who put their efforts into OS/2. They wasted their resources," added an Adobe Systems, Inc. spokesman. Companies such as Adobe said they do not have resources to hit several platfoms at the same time.

More opportunities

The first set of application frameworks for OS/2 will let developers infuse their existing applications with features such as advanced data manipulation and two- and three-dimensional graphics.

The second set of frameworks, due later next year, will give developers the opportunity to write applications that fully exploit the Taligent operating system. One of the higgest advantages touted by both Potel and Bohrer is the ability to create genuinely collaborative applications that easily share data across environments.

One of tbe benefits of the Taligent application programming interface, Potel explained, is that the system software automatically knows how a particular application is structured and it can present the same document or memo to another application across a network.

"If two people are working on a letter, they could open up any old word processor and over the phone argue about what changes to make," Potel said. "You can get some of that today, but the nice thing with Taligent is that any app you write is automatically built that way."

OS/2 is making headway in the corporate arena.
Page 37

Power-packed

Using a low-level example to show developers the power they can get with the second set of frameworks, IBM said it created a calculator program that has undo and redo features and allows two people to collaborate on the same set of data simultaneously. It took only 70 lines of code to create the program using the Taligent technology, compared to 3,000 to 4,000 lines of code te do the same program under Windows or Presentation Manager.

IBM taps Cannavino as top tech exec

By Johanna Ambrosio and Ed Scannell

IBM strategy guru Bernard Puckett resigned unexpectedly last week. He will be replaced by James A. Cannavino, currently general manager of IBM's Personal Systems division.

Puckett, 49, is leaving tbe company to "explore opportunities to go into business for himself," according to a statement issued late Friday. Puckett had been named senior vice president for strategy only in June.

Some analysts said Puckett's selection was a mistake from the start. "Gerstner picked the wrong guy for a key position; he has now reversed himself," said Bob Djurdjevic, president of Annex Research in Phoenix.

Many observers were taken by surprise. "The whole thing is very strange," said Jay Stevens, an analyst at Dean Witter in New York.

"I can't figure out why a guy who appears to be a rising star in the firm gets a key position and before he gets a chance to do anything right or wrong, is gone," said Curt Rohrman, a vice president at First Boston Corp. in New York.

Cannavino has presided over a resurgence in IBM's PC business over the past year — particularly in the PC Co. and the recent success of Personal Software Products' OS/2. But some note that he was also in charge when the company's hardware market share slid precipitonsly in the late t980s and early 1990s.

Maverick technologist

What appears to be in Cannavino's favor, however, is his thorough uoderstanding of technologies ranging from mainframes to PCs and, perhaps, his reputation as a maverick within IBM.

"Cannavino is one of the few guys who, given enough power, can make some of these Jurassic Park inhabitants come to the 20th century," said Frank Dzubeck, president of Communications Network Architects, Inc. in Washington.

IBM's James Cannavino: *Still unsure of his new role*

Cannavino reportedly told consultants last week that he was uosure of the scope of his new duties and would spend the next few months in a "discovery phase." Cannavino, through a spokesman, said a successor is expected to be named in a few weeks.

Cannavino, also 49, started with tBM 30 years ago as a customer eogineer. He was appointed president of the company's Data Systems Division in 1987 and named president of its PC business in 1988, assuming responsibility for all Personal Systems business in September 1989.

PowerPCs roll

IBM's Power Personal division this week will debut its first series of long-awaited PowerPC-based servers and desktop systems.

One of the highlighted features of the new systems, according to one analyst briefed last week, is built-in voice recognition that allows them to intelligently converse with users.

IBM will also detail support for a broad range of 32-bit operating systems for the PowerPC-based machines, including Microsoft Corp.'s Windows NT, IBM's AIX and WorkPlace OS, and Taligent, Inc.'s operating system [CW, Nov. 1].

—Ed Scannell

Gentlemen, start your snails.

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Gupta SQLBase *"...took an unthinkable 60 hours to load the tables and then crashed on the index builds..."*

For your copy of the complete PC Magazine article, including test results call 1-800-633-1071 Ext.8129.

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Where Sculley's vision blurred

"After Sculley, Apple lacks key visionary," read the headline in the *San Jose Mercury News* after John Sculley's departure. Personally, I think the same could have been said for Apple *with* Sculley.

"Visionary" was the term Sculley repeatedly used to describe himself in his book "Odyssey," a self-absorbed account of how he unseated Steve Jobs. Jobs, of course, was a genuine visionary even if he was an abysmal businessman. Having deposed him, Sculley felt obligated to take on the mantle himself.

But it was never clear to me how Sculley's "vision" benefited Apple. I heard him address Novell's user group in Salt Lake City last March when he shared his vision of the future with a hushed audience. I may have missed some of the details, but I recall him saying that the $80 billion PC industry, the $1 trillion consumer electronics industry and the $1.3 trillion media publishing industry were going to merge into a new industry worth a pentaquadzillion dollars by the year 2001.

Wow, I thought, this Sculley can really see over the horizon, and he's got the charts to prove it. But right now, Microsoft is selling 1.5 million copies of Windows a month, while Apple is selling 1.5 million Macintoshes a year. I wonder where that leaves the Mac by the year 2001? I tried and I tried to figure it out, but the prospect of all that money waiting to be made dazzled me too much to think about it.

John Sculley was better at marketing himself as a visionary than he was at marketing Apple.

Charles Babcock

Sculley led Apple into overinvesting in the future with gadgets. The Newton personal digital assistant can tell you where Elvis is located on any given day, but it still can't spell your name right.

While it pursued the Newton, Apple passed up other, surer opportunities. Six years ago, with Windows still on a shakedown cruise, Sculley kept Macintosh prices high, satisfied with Apple's 11% market share and high margins. As Windows improved and the PC market exploded, Mac prices stayed too high for too long. What had been a huge lead in the graphical user interface was frittered away with no market share gain for Apple.

No more "1984"

With Apple's fundamental strategy in retreat, Sculley rushed into a hollow embrace with IBM. Instead of forging the hammer that would smash Big Brother, Sculley made Apple into a company more like IBM, too distant from its customers and too dependent on an overweening pride and self-image to respond to changes in the marketplace.

But what Sculley did that is hardest to forgive was name himself chief technology officer at Apple, as well as chairman and CEO. Sculley, the marketing personality, insisted on taking the title to which he had the least legitimate claim. I mean, this is a man who admitted telling Jobs, while being recruited, "Steve, why are you talking to me? I don't know anything about computers."

Chief technology officer is usually a title held by someone who has shown leadership in driving the product line. What did Sculley do for the Mac besides sue Hewlett-Packard and Microsoft?

"It was outrageous to name myself chief technology officer," he agreed on Charlie Rose's TV show this year, but he said he had to do it to boost his effectiveness as a Silicon Valley spokesman.

So when Bill Clinton wanted to polish his high-tech connection, there was Sculley at his elbow — during the campaign, the inauguration and the State of the Union. It was hard to tell what Clinton knew about technology, but it was clear Sculley knew something about politics.

Sculley's wish to be a high-tech statesman overwhelmed his interest in running Apple as a business, and Apple missed out on the bulk of the second PC revolution — the explosive growth in the use of the graphical interface that it almost single-handedly launched.

Babcock is *Computerworld*'s technical editor. His MCI Mail address is 575-2737.

Corporate decentralization

CIO ousted from Bank of Boston

By Joseph Maglitta

Michael Simmons, the highly paid and highly visible technology chief whose fast-track career advanced through many prestigious banking posts in the late 1980s, was forced to resign in a high-level shake-up that eliminated his post at Bank of Boston Corp.

His departure came as part of a dramatic corporate decentralization, cost-cutting and executive shuffling announced Oct. 29 that surprised the financial community and left uncertain the fate of several long-term information systems initiatives at New England's second largest bank.

Bank Chief Michael Simmons *managed IS staff of 3,100*

Since joining Bank of Boston in 1990 from BankAmerica Corp., Simmons, 54, had embarked on an ambitious five-year plan to streamline the bank's disjointed IS operations and electronic-mail systems. As group executive vice president for technology and operations, he commanded a centralized IS staff of 3,100 and a $160 million annual budget.

Simmons, who reported to Chairman Ira Stepanian, also sat on the five-member board of the bank holding company.

Split in half

Under the new structure, IS functions will be split between two smaller organizations reporting to Executive Vice President Edward A. O'Neal, a former Simmons peer who heads the New England Banking Group division of Bank of Boston. A well-regarded consumer banking executive, O'Neal is considered extremely technology-savvy. Before coming to Bank of Boston a year ago, he served as vice chairman at Chemical Banking Corp., where he managed several technology units.

As part of the restructuring, O'Neal and Chief Financial Officer William Shea were promoted to vice chairmen in a new four-member chairman's office. O'Neal will also serve as liaison between the two IS groups and a new 29-member "corporate working committee" made up of senior executives.

A bank spokeswoman said no further IS cuts are planned. Simmons could not be reached last week. His future plans are unknown.

Observers and bank insiders said they do not view Simmons' ouster as a sign that he had failed to meet lofty performance expectations. Instead, many agreed with the official explanation: that realignment and flattening would better position IS to serve each of the bank's newly empowered 15 core businesses.

"Simmons was very well-respected," explained an IS manager at the bank who requested anonymity. "It just didn't make sense to have so many people at that high a level," the manager said, referring to Simmons' ouster and the departure of two other high-level bank executives.

Joseph Ziskin, an Ernst & Young analyst who follows chief information officer issues, said: "They made the decision that [the four-member team] is the group who will run the bank. The other guys didn't need to stick around."

Although his current salary is unknown, Simmons told *Computerworld* in 1990 that his compensation exceeded $400,000 a year at Bank of America.

Art Gillis, a veteran banking technology consultant, said Simmons' big paycheck may have made him a more attractive target for layoff. "He may be the greatest guy in the world," Gillis said, "but there's a certain cap on the value of one man's contribution."

Chrysler weighs outsourcing plan

By Mark Halper

■ Chrysler Corp. is considering outsourcing a PC LAN development and management project that would improve communications among some 13,000 PCs throughout the organization, according to outsourcing vendors.

The $28.1 billion automaker has been informally soliciting LAN schemes from outsourcers for almost a year and is now close to issuing requests for proposals (RFP), according to sources at prospective bidders.

One source close to the company who asked not to be identified said the deal could be worth between $20 million and $30 million annually over three years and that Chrysler will issue its RFP on Nov. 15.

"They solicited input from a number of companies earlier this year — a what-if type of thing," said Harvey Cohen, director of commercial operations at Unisys Corp.'s system support operations. "It is our understanding that they are ready to go forward with an RFP."

Chrysler wants to improve the interactivity among its base of proliferating PCs, many of which have been acquired on a departmental basis without the coordination needed to enable useful connectivity, Cohen said. Chrysler probably needs to standardize on applications and electronic-mail programs, he observed.

A Chrysler spokesman said only that PC management "is under review as it is under review every year."

As in all outsourcing evaluations, Chrysler may decide to leave the job up to its own information systems department.

Chrysler is believed to have held conversations with Unisys, Digital Equipment Corp., which provides PC maintenance to Chrysler, IBM's Integrated Systems Solutions Corp. (ISSC) and Memorex Telex Corp. The automaker has also talked with a Chrysler subsidiary, Chrysler Systems, Inc. in Oak Brook, Ill.

"They are talking about putting out an RFP, and we expect to get one," said Jim Lindner, president of the networks group at Memorex Telex, which supplies 3270 terminals, PCs and services to Chrysler.

Digital, ISSC and Chrysler Systems all declined to comment.

Informix to sell Windows NT with its database

Release aims to challenge similar bundling of Oracle and NetWare

By Kim S. Nash

Informix Software, Inc. is expected to release in January a kit that bundles Microsoft Corp.'s Windows NT, Informix-SE Server and sundry Informix connectivity tools at a price less than half the cost of buying the products separately.

Targeted as a platform for department-level client/server systems, the bundle will compete head-on with a similar database/operating system package offered by Oracle Corp. and Novell, Inc. [CW, June 7].

Bundled up

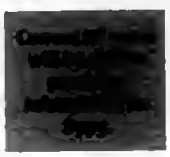
The $1,795 Informix/Microsoft bundle is available through Microsoft resellers, Informix VARs and directly from Informix. Bought separately, the products would cost about $5,000. The bundle includes the following:

- The Microsoft Windows NT operating system.
- The Informix-SE 5.0 database.
- The Informix-SQL suite of development tools, including forms and report writers and scheme editors.
- The Informix-ESQL/C third-generation language for building applications that access databases through standard SQL.
- Q+E ODBC Pack, an Open Database Connectivity (ODBC) driver that Informix resells from Q+E Software.

Informix is reselling NT under an agreement with Microsoft, which in turn will allow its 3,000-plus solutions providers to resell the SE Server database. Microsoft will continue to aim its SQL Server database at low-end LAN users.

Talking to NT

The theory behind the Informix/Microsoft partnership is that users will be able to get Unix applications running against an Informix database to talk to potential Windows NT-based setups. "Coexistence of NT and Unix is probably what most big companies will find most useful," said Fred Hubbard, president of the Northern California Informix User Group.



Such scenarios have yet to arise, Hubbard noted, "but it's good to know in the back of your mind that Informix users have that option."

What NT users will get is access to more than 10,000 applications currently available for Informix databases. But porting Informix packages to NT is viewed mainly as a safety net by Informix resellers afraid of being left in the dust should NT blossom into a viable enterprise-level operating system.

"No one is beating our doors down saying they gotta have NT, but users are starting to get excited about it. So we'll be there when they want to buy later on," said Bob Bearden, president of Munies Information Systems, Inc., an Informix value-added reseller (VAR) in Clifton, N.J.

"We haven't gotten anyone committed to NT today, but we have seen interest," agreed John Woolsoncroft, director of marketing at Concepts Dynamic, Inc., a VAR in Schaumburg, Ill.

The Informix/Microsoft package is priced at $1,795 (see box). The Oracle/NetWare bundle is priced at about $250 per user, according to Larry Ellison, chief executive officer at Oracle. However, that kit does not include utilities such as an Open Database Connectivity driver, which is part of the Informix package. Informix plans to port its high-end On-Line database to NT next year.

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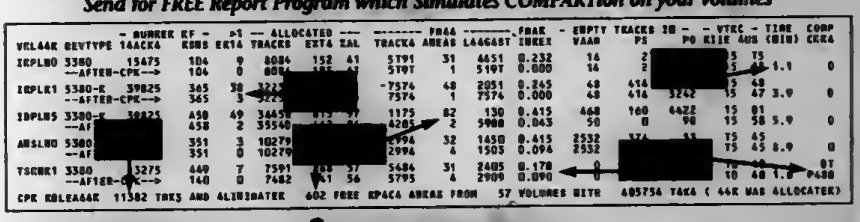

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News Shorts

Apple cleans house

Spring cleaning is coming a few months early at **Apple Computer, Inc.**, which has scheduled three large auctions to clear tens of millions of dollars worth of old, excess inventory from its warehouses. Apple plans to offer more than 18,000 discontinued Macintoshes and peripherals at the auctions, scheduled to occur in the next month in Des Plaines, Ill.; Framingham, Mass.; and Washington.

Globex struggles and restructures

After 16 months in operation and no profits to show, Chicago's $100 million, after-hours futures trading system, **Globex**, is being restructured. The major change will be to open the computerized system to two powerful European futures exchanges, one in London and the other in Paris. The concessions are seen as a last-ditch effort to save Globex and increase its trading volume — now at about 29,000 contracts daily.

Software pirates sentenced

One man is in prison and another serving home detention in what is believed to be the first software piracy case in U.S. history to result in a jail sentence. Benny S. Lee and Norman Chan in Fremont, Calif., are serving time after pleading guilty to misdemeanor copyright infringement charges in connection with a software counterfeiting ring. The operation allegedly manufactured and distributed at least 25,000 copies of Microsoft Corp.'s DOS operating system, causing an estimated $1.8 million in lost sales.

AT&T and 3Com team for fast Ethernet

3Com Corp. last week announced a joint development pact with **AT&T Microelectronics** aimed at bringing 100M bit/sec. Ethernet products to market quickly. The two firms will codevelop physical-layer devices for 100Base-T, 100M bit/sec. Ethernet products incorporating the IEEE 802.3 carrier-sense multiple access with collision detection media-access control standard. The transceiver silicon will support Categories 3, 4 and 5 twisted-pair cable.

Study singles out successful CIOs

Many chief information officers are being forced to retrench their technical expertise to rebalance their roles as technologists and businesspeople, according to a study released by **Ernst & Young, Heidrick & Struggles, Inc.** and **Boston University**. Two distinct types of successful CIOs were detected: the company careerist and the professional CIO, who is often brought in from the outside to turn around a company. Successful CIOs balance their role as technologist, utility manager, research and development director and infrastructure builder, the report pointed out.

SHORT TAKES **Montgomery Ward**, the giant Chicago retailer, is installing 130 Novell, Inc. LANs and assorted NCR Corp. workstations and servers in a project valued at $4.5 million. The retailer will use **Entex Information Services** in Rye Brook, N.Y., as the integrator. ... **AT&T Communications** has restructured its internal information systems operation, naming Rino Bergonci — former CIO at United Parcel Service, Inc. — vice president of AT&T's Information Management Services organization. ... **BSG Consulting, Inc.**, a Houston systems integrator, last week established a subsidiary to help companies manage the transition to client/server computing. ... Intel Corp. will announce a 3.3V, 50-MHz DX2 chip this week, which it claims is its highest performance chip to date. The new SL Enhanced Intel 486DX2 is reportedly twice as fast and consumes half the power of the 5V 486DX chip, while costing about the same.

More news shorts, *page 16*

Microcomputers

Digital PCs to support Intel, Alpha

By Craig Stedman
STOW, MASS.

In a continued effort to increase its PC presence, Digital Equipment Corp. this week will introduce an upgradable premium line that uses the Peripheral Component Interconnect (PCI) bus and will eventually support either Intel Corp. microprocessors or Digital's own Alpha AXP devices.

However, the Alpha option is not scheduled to be available on the DECpc XL machines until next spring, Digital said. The company previously confirmed it had postponed the launch of Alpha-based systems equipped with the PCI bus in order to wait for a lower-cost microprocessor [CW, Oct. 18].

All DEC'd out

Product	Chip	Availability	Price*	Pentium upgrade/cost
XL 433DX	33-MHz i486DX	Late November	$2,899 (XL 433DX)	60-MHz/$1,199
XL 466DX2	66-MHz i486DX2	Late November	$3,299 (XL 466DX2)	66-MHz/$1,999
XL 560	60-MHz Pentium	Mid-December	$3,999	Not applicable
XL 566	66-MHz Pentium	January	$4,599	Not applicable

*Price includes 8M bytes of memory, 340M-byte SCSI disk drive, S3-928PCI local-bus video, dual-SCSI CD-ROM, MS-DOS and Windows. Monitors start at $299.

Upgrade offerings

Positioned above the DECpc LPv/LPx value line introduced in August, the XL systems are initially being offered with Intel i486 and Pentium chips. In-box upgrades are possible via a daughtercard swap, and Digital said upgrades from the Intel devices to Alpha will also be supported.

The dual-path strategy is meant in part to erase Digital's image as "a me-too [PC] company, and probably a slow one at that," said Lex Dekkers, XL product line manager. The XL's minitower enclosure can handle clock speeds of up to 200 MHz and should accommodate both the second and third generations of Pentium, he added.

The upgrade capabilities appeal to Andre Hallam, senior office automation analyst at Children's Hospital of Eastern Ontario in Ottawa. "We go through a lot of PCs here, and [upgrading] is obviously cheaper than replacing a box with a whole new system," he said.

Digital's promise that an Alpha upgrade will cost less than $2,000 "sounds great," Hallam said. He added that his interest at the high end lies more with Alpha than with Pentium. "If I want a power-user PC, there's no sense buying a middle-of-the-road Pentium," he said.

However, Richard Zwetchkenbaum, an analyst at International Data Corp. in Framingham, Mass., said he views the XL systems as Pentium boxes first and foremost since it remains unclear how much single-user demand there will be for the Alpha versions running Microsoft Corp.'s Windows NT.

High performance

Digital's pricing is not especially aggressive, but the 80 million WinMarks rating on the 60-MHz Pentium-based XL 560 qualifies it as "a screamer," according to Zwetchkenbaum.

"You've got to give them their due in that respect. They managed to put together a very high-performance platform," he added.

One lingering issue, though, is Digital's lack of sales through indirect channels. The company's PC business unit signed several distribution deals last summer, but Winnie Briney, U.S. marketing director for PCs, acknowledged that a channels support infrastructure is still in the formative stage.

"We don't even have full-bore sales teams in place on each of the channels yet to make sure we're fully exploiting them," said Briney, who joined Digital in September. She added that she expects Digital to be more competitive in the channels area by the first quarter of 1994.

Novell tightens NetWare links to VAXs, Alpha

By Craig Stedman

Trying to fill a hole in its enterprise systems line, Novell, Inc. last week introduced a set of NetWare Loadable Modules said to enable PCs on NetWare LANs to access Digital Equipment Corp. computers through their servers.

Due to ship in December, the software implements Digital's Local Area Transport (LAT) protocol on a NetWare server. That makes the server the point of contact with VAX and Alpha AXP systems and eliminates the need to install protocol stacks other than Novell's IPX code on individual PCs.

While NetWare-to-VAX software is available from third-party vendors, loading LAT or other transports at the PC level was the only approach Novell could recommend to its customers until now. However, that method eats up PC memory and also can require dedicated bridges or routers within wide-area networks.

NetWare for LAT "gives Novell the DEC connectivity that it didn't have before," said Nancy Meachim, a senior analyst at International Data Corp. in Framingham, Mass.

No holdups now

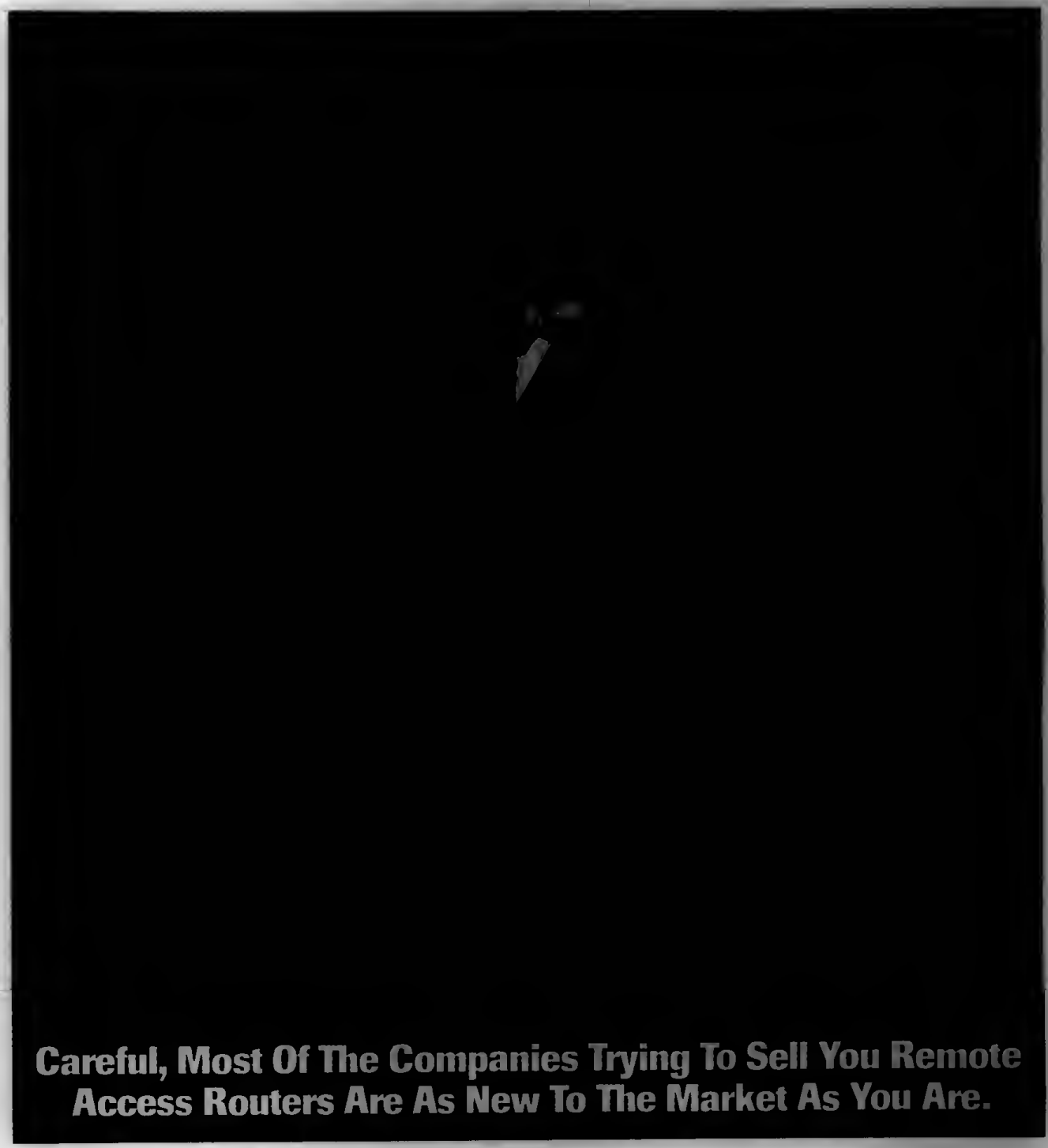
Mike Thompson, information systems manager at Integrated Device Technology, Inc. (IDT), said TCP/IP network traffic "is considerably less" now that he no longer has to connect PCs to his VAX systems via direct TCP/IP gateways. The Santa Clara, Calif., semiconductor vendor is beta testing NetWare for LAT.

IDT also uses InterConnections, Inc.'s NetWare connectivity software with some of its PCs. That lets users access VAX applications in native DOS or Windows mode rather than via the terminal emulation supported by NetWare for LAT.

Still, the Novell product "is very inexpensive and straightforward," Thompson said.

Steve Williams, network administrator at Santa Clara Valley Medical Center and another NetWare for LAT beta tester, said he expects to be able to implement it for about $300 per user in a 64-PC installation. That compares with a cost of $800 per port using terminal servers to provide VAX access, he noted.

Digital plans to ship in January a new version of its Pathworks LAN software that will allow NetWare clients to get at VAX files and print services via IPX [CW, Oct. 18]. Nearly a third of VAX sites use NetWare, according to Computer Intelligence/InfoCorp figures.



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Amdahl tries to rightsize its business

By Jean S. Bozman
SUNNYVALE, CALIF.

Responding to continued heavy losses, Amdahl Corp. last week said it will lay off 24% of its 7,400-member work force by midyear and cancel two open systems development projects.

The IBM-compatible mainframe maker has been struggling for some time to cope with the impact of sinking mainframe demand (see chart). In August, the company announced it would reorganize into five independent lines of business, creating units with separate profit-and-loss responsibility. Last week the firm restructured again — this time dropping internal development of Unix machines, closing 650,000 square feet of manufacturing and again cutting the payroll.

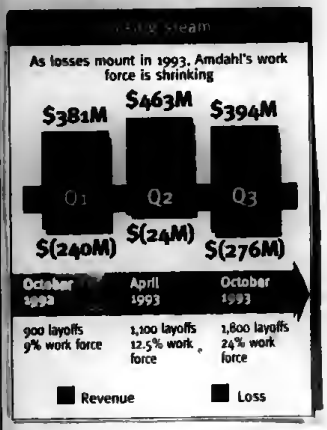
As expected, Amdahl will fill the Unix void by selling systems from other vendors such as Sun Microsystems, Inc. [CW, Oct. 25].

Some users and industry analysts see the restructurings as reactionary and too little too late. Omri Serlin, president of Itom international, Inc. in Los Altos, Calif., called these new moves "clearly a rear-guard action" and characterized reselling Sun equipmeot as a "short-term solotion."

John B. Jooes Jr., a vice president of research at Salomon Brothers, Inc. in San Francisco, said the company put itself in its current fix by taking too long to develop its open systems strategy. "They missed the boat in being able to do it themselves."

Amdahl's latest comeback strategy is two-pronged: It will respond to IBM's next generatioo of mainframes with a more cost-effective design based on CMOS chips and simultaneously try to boost software and services revenue.

These oew revenoe streams will be critical because CMOS chips will further reduce already tightened mainframe profit margins. The company has a long way to go in these areas, however. Mainframe services, such as maintenance and technical education, represeoted 17% of the company's 1992 $2.5 billion revenue, while software sales accounted for a mere 3%.



One thrust of the oew structure is providing re-engineering services, such as linking legacy mainframe systems to applications running on Unix servers.

Although Amdahl Chief Executive Officer Joseph Zemke insisted for over a year that downsizing was overhyped, Amdahl is now finding that its installed base is moving very fast in that direction.

"This may very well be the last of the old-line mainframes we ever buy," said Peter Bauer, director of informatioo systems at the 400-physician Marshfield Clinic in Marshfield, Wis.

The clinic just added a second Amdahl 5995 mainframe, which runs the Amdahl UTS Unix operating system, and is expanding a campus fiber-optic network with the help of Amdahl consultants. But the next generation of Unix machines may include many veodors' platforms, be said.

"I think a lot of people are in a holding pattern [with mainframes]," said Frank Stromboe, information services director for the city of San Antonio. "Moving applications off the mainframe buys us cycles as we make a transitioo from mainframes to client/server and Unix."

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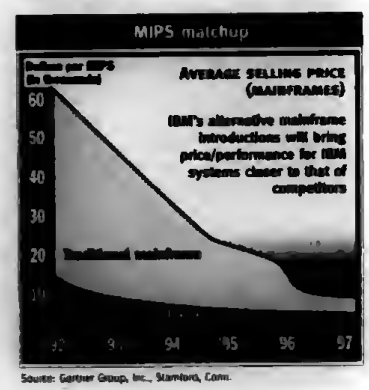
Massively parallel processing

Simultaneous querying ushers in mainframe future

By Johanna Ambrosio

IBM will officially start the race toward its mainframe future with the announcement tomorrow of its first parallel processor aimed at the general-purpose market. While the machine's initial scope will be limited, it will serve as the basis for IBM's next generation of mainframes.



Source: Gartner Group, Inc., Stamford, Conn.

The machine, dubbed the Highly Parallel Query System (HPQS), will allow customers to off-load their DB2 database from their mainframe, thus saving regular mainframe horsepower for other applications [CW, Jan. 18]. The initial HPQS version will support DB2 queries only, but later models will add updating capabilities as well as other databases to the mix.

As such, HPQS will compete head-on with computers from Kendall Square Research Corp., Encore Computer Corp., Sequent Computer Systems, Inc., Hewlett-Packard Co. and the newest wares from NCR Corp. (see story page 1).

Sources said HPQS, which directly attaches to the ES/9000 family and to some models of the 3090 line, will be delivered in quantity in March. A modular architecture will support a minimum of 50 MIPS and a maximum of about 200 MIPS. Pricing is expected to be around $18,000 per MIPS.

Separated then united

The system will come bundled with special versions of DB2, the MVS operating system and other software that allows SQL queries to come into HPQS and be broken into pieces that are given to whichever processors are available. A utility will take the DB2 data on the general mainframe and move it to HPQS. Storage devices and services will complete the mix.

IBM spokesmen did not return phone calls seeking comment, but Nick Donofrio, the head of IBM's Large Systems business, talked about HPQS earlier this year [CW, Feb. 15]. At that time, he promised it would require little work to make the transition from the mainframe to the parallel versions.

It is a vow that users are counting on. "We have a lot of interest in this product — if the pricing is aggressive," said James F. Sutter, vice president of information systems at Rockwell International Corp. in Seal Beach, Calif. "The key question is how easy it will be for us to move our applications."

However, it is still unclear to what extent existing applications will be able to take advantage of the parallel architecture. It is also unclear to what extent users will be able to customize the machine once it is installed.

Third parties courted

But IBM trying to get third-party software vendors to support HPQS. Vendors signed up so far include Candle Corp., Oracle Corp. and Information Builders, Inc.

HPQS will likely appeal to data-intensive shops in financial services, insurance, consumer goods and other industries, observers said. Allstate Insurance Co. in Northbrook, Ill., helped IBM develop the machine; at least one other beta version of the machine is running at a site in Europe.

Jim Cassell, an analyst at Gartner Group, Inc., estimated IBM will sell perhaps 200 to 300 HPQS machines during the next few years. By that time, IBM will follow HPQS with other parallel models for transaction processing and other tasks. By the end of the decade, the parallel architecture will be the basis of IBM's entire family of general-purpose mainframes, Donofrio has said.

Some users are withholding judgment, at least for the time being. Doug Uaderhill, vice president at CSX Technology in Jacksonville, Fla., said, "The premise is if it speeds things up, it's good. But doing database queries quickly does not address whether you should be doing it. You have to have a very strong business case as well."

NCR to boost system

CONTINUED FROM PAGE 1

David Frankel, director of technology at The Smaby Group, Inc., a Minneapolis-based research firm (see story at left).

While they wait, several customers said they wanted to see enhancements to the 3600, including parallel query capabilities, which they said would further entice them to remain loyal to the NCR architecture rather than shop elsewhere for future MPP systems.

Several NCR 3600 customers said they were eagerly awaiting the parallel query feature of Oracle Corp.'s Oracle 7.1 Parallel Server and Sybase's Navigation Server, both of which will run on the MPP machine next year. Delta Air Lines, one of three Sybase Navigation Server alpha testers, plans to use Navigation Server to prototype a new application for tracking baggage, gate agent information and other airport operations, said David Cochran, technical coordinator of architecture at the Atlanta-based airline.

NCR 3600 and Teradata DBC 1012 enhancements include the following:
- Pentium processor upgrades for the NCR 3600. Available now.
- 486DX/2 microprocessor upgrades for the NCR 3600 that run the Teradata DBC 1012 database. Available now.
- Teradata DBC 1012 database Release 5.0. Available now.
- Immediate beta availability of Oracle 7.1 Parallel Server database with parallel query option.

Ready for beta

Berl Hartman, vice president of product marketing at Sybase, said formal beta testing of Navigation Server will begin next month with volume shipments slated for mid-1994. NCR and Sybase codeveloped Navigation Server, the last of 12 System 10 products that Sybase announced a year ago.

Owen Robertson, a database administrator at Invesco Funds Group, Inc. who was among 400 customers attending an NCR briefing in San Diego last month, said his company plans to upgrade its Oracle 6.036 database to Oracle 7 by year's end to attain several new features.

For example, Oracle 7 provides shared SQL and multithreaded server capabilities, which Oracle 6 lacks. Oracle 7.1 will come equipped with a parallel query engine, a capability similar to Sybase's Navigation Server, which divides and guides queries through SQL server databases running on parallel processors.

After various pieces of a query are broken down and sent across by the parallel processors, Sybase's Navigation Server and Oracle 7's parallel query components will reassemble the query and send a single response to the user. Those capabilities have caught Robertson's attention because his company's burgeoning decision-support systems would be able to read through data more quickly with such technology, he said.

Others see the 3600 as a stopgap along the way to the 3700. "The 3600 is going to carry us for another three to four years, so we'll see what the marketplace brings with the 3700 and other systems," said Forrest Grapes, manager of technical services at Kansas City Power & Light Co. in Kansas City, Mo.

David Barrett, a vice president of information technology at Invesco, a Denver-based mutual funds group that installed the NCR 3600 in August 1992, also said he can wait on the NCR 3700 and alternative systems. "I don't have great concerns that [the 3600] won't keep pace for some time," Barrett said.

Like other NCR 3600 customers, he said his company opted for the Intel Corp. i486-based machine because it is field-upgradable to the Pentium-based NCR 3700 and beyond.

"The 3700 will have better speed and [direct-access storage device] performance than the 3600, but I'm thinking that an upgrade is a 1995 decision since we just put in the 3600," said Mark Davis, director of data management at Union Pacific Railroad in Omaha.

To help smooth the migration to the NCR 3700, the Dayton, Ohio, computer maker this week will also announce the immediate availability of Pentium upgrades to the NCR 3600, according to Andre Dahan, assistant vice president of strategic planning and customer alliances.

Vendors are pushing Unix toward high-end machines.
See story page 67.

Oft delayed

NCR's 3700 was originally slated for delivery earlier this year. But after announcing plans last year to delay the system to early 1994, NCR told analysts in August that shipments of the multithousand microprocessor machine would be further delayed until mid-1995.

The Pentium-based NCR 3700 has been delayed to incorporate several technical enhancements, including the optimization of the Unix operating system to run commercial parallel processing applications, said Andre Dahan, assistant vice president of strategic planning and customer alliances. Industry observers, however, said that salability rather than the scalability of the highly parallel systems has contributed most significantly to its delayed debut.

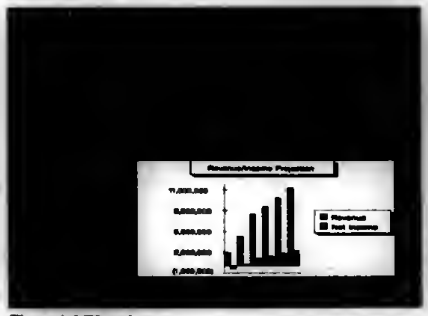
"Most companies with MPP systems today are only running dozens, or at most, a few hundred parallel processors," said David Frankel, director of technology at The Smaby Group.

"The need for an MPP system with thousands of processors, such as the 3700 will have, isn't really there yet," Frankel added.

Agreeing with Frankel, NCR 3600 customers interviewed last week said they have only just begun to harness the processing power of their machines and probably will not be ready to upgrade to a 3700 before 1995.

Meanwhile, NCR continues to optimize the performance of the NCR 3700. When the machine is delivered, it will be price/performance competitive with forthcoming MPP machines to be introduced in 1995 by IBM (see story at left), Unisys Corp. and other vendors, according to Robert G. Simko, executive director at International Technology Group, a Los Altos, Calif., market researcher.

— *Thomas Hoffman*



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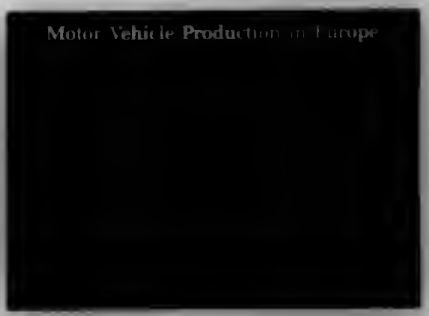

Business Graphs

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Networking

Will 'fast LAN' technology thrive on its own?

By Joanie M. Wexler

■ Even as the first 100M bit/sec. Ethernet products from inventor Grand Junction Networks, Inc. start hitting the streets today, the future of the so-called "fast LAN" technology will remain a question mark.

It is not clear whether the pumped up LAN technology, which preserves entrenched Ethernet investments in expertise, router ports and protocol analysis tools, will wind up functioning primarily as a pre-Asynchronous Transfer Mode (ATM) bottleneck-reliever or thrive as a LAN in its own right.

"Users are confused; they're not sure which 'standard' to buy," said Todd Dagres, vice president of communications research at The Yankee Group, a Boston consultancy. He was referring to competing fast LAN standards from two camps, one led by Grand Junction and the other by AT&T and Hewlett-Packard Co.

Meanwhile, Atmel Corp., a semiconductor firm in San Jose, Calif., has been a beta site for Grand Junction's products for about a month, using them to alleviate server traffic jams. The installation comprises Grand Junction's FastSwitch 10/100 switching hub, which supports many dedicated 10M bit/sec. Ethernet links, two dedicated 100M bit/sec. connections and corresponding FastNIC 100 Extended Industry Standard Architecture adapters in the servers.

Users aren't sure which standard they should buy, according to The Yankee Group's Todd Dagres.

The scenario allows Atmel to dedicate 10M bit/sec. to certain workstations using existing adapters and to deliver 100M bit/sec. to the oft-tapped servers, effectively tripling the amount of bandwidth available, Atmel said. This scheme is "cheaper than trying to get FDDI interfaces into all the servers," said Tom Gilheany, communications engineer.

FDDI, or Fiber Distributed Data Interface, is a fairly established 100M bit/sec. LAN. interface cards hover around the $1,000 mark, however, whereas the Grand Junction cards cost $399.

While 100M bit/sec. Ethernet is in its infancy in the standards process — the Grand Junction version is being submitted to the Ethernet standards body this month [CW, Nov. 1] — "standards didn't play so much of a role here," given the high-speed links are confined to a fixed number of centralized servers, Gilheany said. He said the role of 100M bit/sec. Ethernet is uncertain in his firm. "It could change to ATM, something else or catch on and take off. But this will hold us a few years till we see what develops."

API wars

CONTINUED FROM PAGE 1

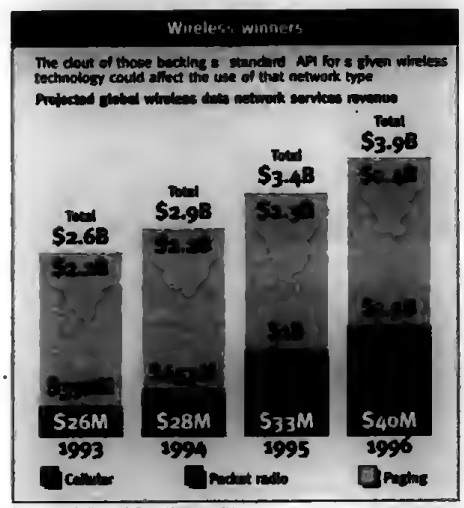
ever wired or wireless communications service they choose, she said

However, competing activities, including an expected initial demonstration of Motorola's Mobile Networks Integration (MNI) specification at next week's Comdex/Fall '93 show (see box below), could eventually hinder wireless use if efforts do not coalesce before wireless demand ramps up.

Incompatible interface methods mean that "some applications built for one network may not be available on another," said David Coursey, editor of the "P.C. Letter" newsletter, published in San Mateo, Calif. That, in turn, could impinge on horizontal, widespread wireless-enabled application use, he said.

On the other hand, as in the case of Farchione's initial project, "vertical markets don't care," he said. "They pick a protocol, often which is best suited for their application, and that's it." He predicted that wireless use will stay largely vertical — or at least confined to a finite population of users — for several years to come.

Indeed, Chevron Information Technologies Co. in San Ramon, Calif., is currently content to use just RAM Mobile Data's network services, said Dale Reed, a personal systems analyst. "So for development purposes, we'll stay with application interfaces that work on that carrier," Reed added.



Source: Insight Research Corp., Livingston, N.J.

Paging APIs!

Expected announcements from Motorola at Comdex/Fall next week include the following:

▶First application rollouts and partnership announcements for its Site Message product [CW, April 19], which allows mobile workers with alpha pagers to download E-mail, calendaring, PC-based faxes and other data when away from their desks or offices.

▶First live demonstration of its MNI specification, which allows developers to write applications that interface to Ardis, RAM Mobile Data, CDPD and paging networks.

▶Enhancement of the Flex paging protocol to boost paging network throughput from 2,400 to 9.6K bit/sec.

Network enabler

MNI, announced last spring [CW, May 3], is an API and gateway effort by Motorola to create what it hopes will become an industry standard. The spec allows developers to network-enable message-based applications for a variety of wired and wireless networks with one interface. Initial products were due in the third quarter but have slipped to first-quarter 1994, a Motorola spokesman said.

Slated to allow developers to add hooks into Ardis, RAM, Cellular Digital Packet Data (CDPD) and paging networks, MNI will be an alternative to RAPI. And yet a third spec is under construction by Intel Corp. for a consortium called the Asynchronous Protocol Standards (APS) alliance.

Analysts said they expect other vendors, such as AT&T with its huge McCaw Cellular Communications, Inc. interest, to also hop on the API bandwagon with their own specifications.

The upshot of multiple APIs is hazy. With all contributing efforts considered in an equal light, competing APIs would "bring forth the best possible solution for the end user," said Robert Rosenberg, president of Insight Research Corp. in Livingston, N.J. This is because developers could evaluate and choose an interface on technical merits, he said.

The problem, Rosenberg said, is that "the playing field is not level, and vendor clout will certainly play a factor when independent software vendors choose their API."

The $250 RAPI kit is available for DOS PCs, and versions for the Hewlett-Packard Co. HP100LX palmtop, Windows PCs and Apple Computer, Inc. PowerBooks are due to ship in the first quarter of 1994.

In the meantime, the APS alliance, which includes Intel, Isocor, Microsoft Corp., Apple, Advantis and other vendors that agreed to work together on the standard in October, has not yet set a date for a draft specification, according to a member of the alliance.

Reporter's Notebook

Speaking at E-Mail World in Santa Clara, Calif., Internet guru Einar Stefferud challenged users to demand from vendors the ability to send messages intact across all their systems.

Today's solution of using electronic-mail gateways that translate messages into different formats creates very serious problems when the translations go awry, which they often do. "We don't want letters that are opened by the post office and rewritten for us," said Stefferud, a principal at Network Management Associates.

Nathaniel Borenstein, a member of the technical staff at Bellcore, echoed this challenge in his session on the future of messaging but added a warning to vendors working on standards today to remember the installed user base. "The problem with X.400 was it was designed to replace everything," he said.

Back in the present, users on the show floor crowed over a personal scanner and related Windows and Macintosh software from Visioneer, a software start-up in Palo Alto, Calif. in demonstrations, the $499 scanner, which is a little larger than a roll of aluminum foil, scanned a one-page document with graphics in about six seconds. The software can convert the scanned images into text formats and drop the pages into E-mail and computer-based fax software. "It's the other half of fax software because you don't have to create documents on the PC in order to fax or mail them around," said one attendee, who envisions equipping his organization's secretaries with the devices.

A partnership between E-mail integration powerhouses SoftSwitch and Hewlett-Packard had less clear benefits. The duo said they will co-market their X.400-based messaging products, SoftSwitch's multiprotocol EMX switch and HP's OpenMail. While SoftSwitch's product lacks message storing capabilities and HP's lacks multiprotocol support, their product lines compete in many other ways, analysts said. The companies said one benefit is that HP's OpenView network management system could be used to manage both platforms, but they did not provide details or time frames for the

NT to blend in X.500 directory services

CONTINUED FROM PAGE 1

One of the problems with running multiple server networks lies in synchronizing the messaging directories. If Microsoft implemeots X.500 correctly, the NT server should beip do that and should interface well with other vendors' X.500 directory prodocts, he said.

If it licenses Siemens' X.500 code, Microsoft will assure itself of compatibility with the emerging industry standard. It was Siemens' X.500 submission that was accepted hy the Open Software Foundation for inclnsion in its Distributed Computing Environment (DCE).

Siemens was unavailable for commeot at press time.

Head start

IBM has already announced that LAN Server will comply with DCE, which inhereotly means it will work with X.500. IBM has already shipped LAN Server client software that works with DCE and is expected to ship a DCE-compliant server partion soon.

> Microsoft is not likely to make [X.500] commercially available in Advanced Server until the next update slated for next year

While Novell's NetWare 4.x series also provides directory services, the services are not based on the X.500 standard.

"The importance of this is that Advanced Server starts to deliver parity with the network operating systems already in place from Novell and Banyan," said Frank Dzubeck, president of Communications Network Architects, Inc., a coosultancy in Washington, D.C.

Microsoft is not likely to make the techoology commercially available in Advanced Server until the oext opdate of the product, which is slated for sometime next year. While Microsoft could deliver it as an add-on to Advanced Server, most observers predict Microsoft will wait so it can more tightly weave it in.

"If they make it an add-in, it would be defeating the purpose of some of the product's advantages. No other vendor has tried to just plog it in," Dzubeck said.

However, even with the addition of sophisticated directory services, some users said they would not view NT as an enterprisewide solution because of its immaturity.

"We'll probably use it more as application server," said Brian Moora, an assistant city manager in San Carlos, Calif., a NetWare site.

Although Microsoft officials declined to comment on the company's X.500 plans, one executive acknowledged the company's interest in directory services.

"We want to ensure that NT is the ultimate open platform, and we are certainly looking at X.500," said Dan Shelly, a Windows NT product manager.

Microsoft has said its forthcoming Enterprise Messaging Server will support X.500 directory services, but it is unclear how that will be done. One logical option is that Eoterprise Messaging Server will operate as a module on the NT Advanced Server and that it will use the server's directory services, analysts said.

management capabilities.

Another HP partnership promised to allow OpenMail users to exchange messages, documents and binary files with IBM mainframe and AS/400 users. LinkAge, Inc. in Ottawa will provide the gateway software that will enable these functions, beginning in the first quarter of 1994.

Meanwhile, Z-code Software in San Rafael, Calif., announced a new version of its Unix-based E-mail that uses the Multipart Internet Mail Extension (MIME) standard. MIME allows multimedia messages to pipe through the Internet unscathed. Unipalm in Cambridge, England, demonstrated its new Unix-based E-mail software that uses MIME and Microsoft's MAPI to send multimedia messages.

—Lynda Radosevich

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IBM

News Shorts

Markey seeks more data protection

U.S. Rep. Edward J. Markey (D-Mass.) last week introduced a bill called the Telephone Consumer Privacy Protection Act, which would prohibit the disclosure of telephone transactional data, regulate Caller ID services and establish a "bill of rights" for telecommunications privacy. The bill also would require businesses that use automatic number identification to inform consumers when they reuse or sell information gleaned from those services.

Compaq unveils midrange, other PCs

As expected, **Compaq Computer Corp.** rolled out 46 desktops this week, including a midrange line called the DeskPro XE based on Intel Corp.'s Pentium microprocessor [CW, Nov. 1]. Compaq also announced price cuts of up to 12% on its ProLinea line and 23% on Pentium versions of the DeskPro/M. Pricing for the lines will now start at $1,149 and $4,099, respectively. The Houston company also announced a new price point of $3,899 for its Compaq Portable 486/66 notebook.

Unisys to boost client/server emphasis

Unisys Corp. is slated today to roll out 10 PW2 ADvantage Series PCs and six CTOS client/server systems featuring Intel's Pentium and Energy Star compliance. Also set to debut is software designed to provide tighter integration between Unisys' Unix-based U6000 Series systems and mainframes running IBM's SNA. Unisys also announced plans to integrate Windows into its CTOS architecture in the first half of next year.

Sybase employee charged in theft

Oracle Corp. has filed a civil complaint against a **Sybase, Inc.** employee, alleging theft and possible misappropriation of trade secrets. William Brumiller was arrested in late September for allegedly stealing hardware and software from Oracle's Redwood Shores, Calif., offices. Brumiller was a programmer at Oracle until June, when he joined Sybase's Gain Technology application development tools unit. An investigation of Brumiller's home turned up a PC, disk drives and several other items reported missing from Oracle both before and after Brumiller went to Sybase, according to Juana Sherman, senior corporate counsel at Oracle. A search of Brumiller's office at Sybase, witnessed by both Sybase and Oracle representatives, found no proprietary Oracle information at Sybase, spokeswomen from both firms said.

SHORT TAKES **Microsoft Corp.** has announced a program to allow developers each quarter to automatically receive the company's Development Platform package, which includes current versions of MS-DOS, Windows, Windows for Workgroups and Windows NT as well as all of Microsoft's software development kits necessary to create Windows applications. The one-year cost is $95.... Mail-order PC maker **Zeos International Ltd.** in Minneapolis and **CompuAdd Corp.** in Austin, Texas, said they are discussing a possible business combination.... **Kean, Inc.** in Boston has signed a letter of intent to acquire systems consultancy **AGS Computers, Inc.** from **Nynex Corp.** in White Plains, N.Y. ... In the largest theft of computer chips to date in the U.S., masked armed robbers stole $2 million worth of computer chips from an **Oki Semiconductor** plant in Taulatin, Ore.... On Dec. 1, **Hewlett-Packard Co.** will launch an express financing and leasing program through which computer customers receive a financing decision within 24 hours.... As expected, **Kendall Square Research Corp.** announced the KSR-2 parallel computer with up to 5,000 processors.

Portables

Toshiba shrinks notebook line

By Stephen P. Klett Jr. and Michael Fitzgerald
IRVINE, CALIF.

Attempting to prove that great things can come in smaller and smaller packages, Toshiba America Information Systems, Inc. is expected today to unveil a subnotebook line sporting features previously found in the company's full-size brethren.

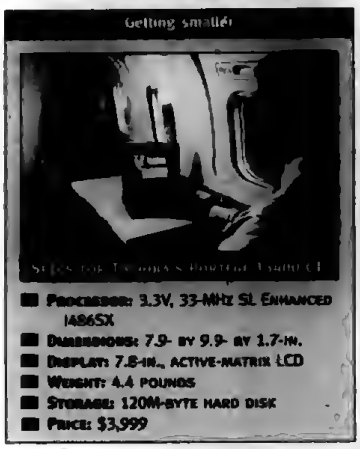
Toshiba's Portege T3400CT is powered by an Intel Corp. 33-MHz I486SX and features an active-matrix color display and a three-hour battery life in a 4.4-pound package. A monochrome version weighs 4.1 pounds and has at least a four-hour battery life, according to Toshiba.

The relatively long battery life comes in part from lithium-ion battery technology, which Portege is the first portable to use. It is also the first subnotebook-class machine with local bus graphics, including a built-in Western Digital, Inc. Rocket graphics chip.

"They've come out with a well-engineered product," said Bruce Stephen, an analyst at International Data Corp. in Framingham, Mass.

Portege incorporates a single PCMCIA Type II slot and a version of the TrackPoint II pointing device built into the IBM PC Co.'s ThinkPad. Bundled with Traveling Software, Inc.'s CommWorks, a monochrome version will ship in January for $2,599; a color model will ship later this month for $3,999.

Analysts said the new products will help Toshiba retain its position as the No. 1 notebook vendor worldwide in the face of ferocious competition. For example, Epson America, Inc. is reportedly readying a 486-based notebook for display at Comdex/Fall '93, and Hewlett-Packard Co. will announce a 486 version of its OmniBook today.



Epson's ActionNote 700 will sport an active-matrix screen, a 33-MHz 486DX processor and weigh in at 5 pounds, positioning it to compete with subnotebooks at roughly $3,000. HP said the 2.9-pound OmniBook will be based on a 25-MHz 486SLC chip from Texas Instruments, Inc. and start at $2,125. The machine's reflective LCD screen and 40M-byte hard drive will keep it a step behind the competition, analysts said.

Portege is more expensive and heavier than competing products, such as Zenith Data Systems' Z-lite, IBM's ThinkPad 500 and HP's OmniBook, all of which start at roughly $2,000 and weigh less than 4 pounds. However, Toshiba officials said they are banking on users' need for more functionality.

"Wow! It really sounds like they have a killer machine here," said William I. Lodge, project director at Turner Corp., a multinational construction company in New York. Lodge said he has ordered ThinkPads but has pretty much given up on receiving them in quantity because of IBM'S delivery woes and reported battery problems (see story below).

Alex Zlotnick, assistant director of marketing systems at Random House Publishing, Inc. in New York, is also interested. "Before Toshiba, we were looking at the [ThinkPad] 500C, which looked nice, but you can't get it," Zlotnick said. He said Random would consider Tosbiba and Epson.

Borland takes on Microsoft

By Melinda-Carol Ballou

Borland International, Inc. will take a stab at rival Microsoft Corp. next week when it announces its C++ 4.0 development environment for Windows and DOS.

Borland expects to ace Microsoft by providing support for 16- and 32-bit application development for Windows within the same tool set, as opposed to requiring developers to purchase separate tools for both environments — as Microsoft does.

One tool kit will simplify migration to Microsoft's Windows NT and upcoming Chicago environments, Borland officials claimed. While Microsoft offers separate tools — Visual C++ for 16- or 32-bit development priced at $599 each or $749 for both — Borland will offer an integrated 16- and 32-bit C++ environment for $499.

Next month, Microsoft reportedly will release its Visual C++ 1.5 and Microsoft Foundation Classes 2.0. The company will seek to ease the pain of Object Linking and Embedding (OLE) development by offering class libraries for OLE 2.0, along with Object Database Connectivity support and other features [CW, Oct. 25].

Borland hopes to deliver OLE 2.0 support in its Object Windows Library (OWL) early next year.

Major improvements to OWL 2.0 include a set of predefined visual objects, source-code compatibility between 16- and 32-bit Windows and high-level controls. C++ 4.0 features include new visual programming tools, exception handling and templates.

Power shortage

Advice to users waiting for back-ordered ThinkPad 500s: Don't hold your breath.

IBM has temporarily pulled the plug on production of the subnotebook due to technical problems with the battery, according to a spokesman.

The 500 uses a new lead-based battery technology designed to provide longer life and easier recharge at a lighter weight than conventional batteries. The spokesman said several customers reported that the battery lost its charge very quickly. Some machines lost power immediately after they were turned on.

IBM plans to announce a fix in two weeks; it could come in many forms, including a product recall or shipment of new batteries to customers. "You'll see the 500 back soon," the spokesman said. "This is not a situation where the model will be canceled. It's a temporary halt."

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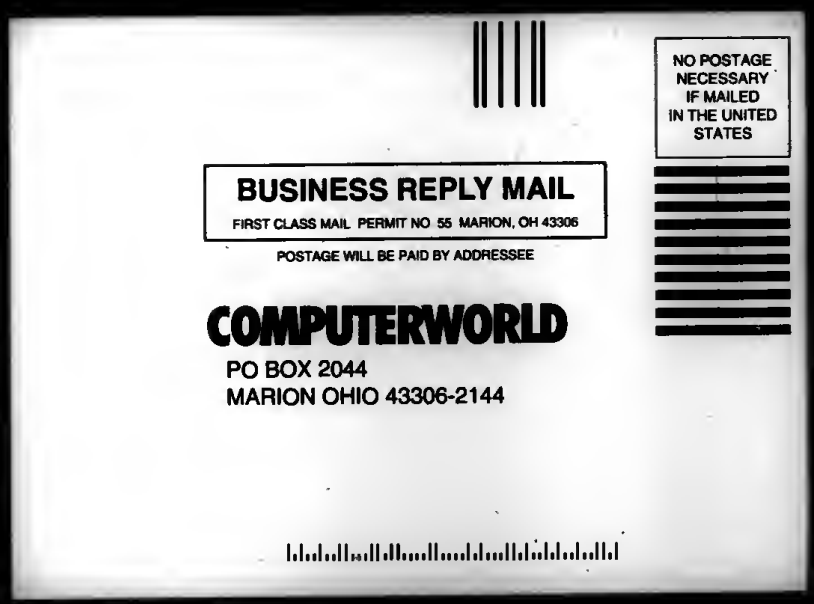
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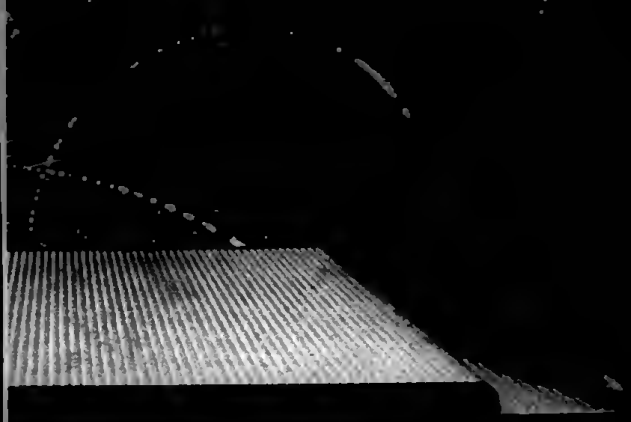

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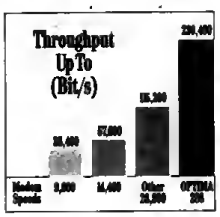

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CA ships OS/2, Windows graphical tool

By Thomas Hoffman

Computer Associates International, Inc. last week began shipping what analysts said is the first graphical development tool kit to work with Windows and OS/2.

CA-Realizer 2.0, a Basic programming environment, was designed to enable developers to write applications in Windows and easily recompile them toto OS/2 and vice versa, early beta users said. It is the first upgrade of Realizer since CA inherited the technology in its May 1992 acquisitioo of Within Technologies, Inc. Within had hoped to take oo Microsoft Corp.'s Visual Basic.

CA-Realizer 2.0 combines industrial-strength applicatioo development capabilities that take advantage of OS/2's 32-bit operating eovironmeot for bigh-level programmers while meeting the more simplified graphical user interface needs of oovice developers, according to John Dunkle, president of WorkGroup Technologies, inc., a Hampton, N.H., market research firm.

"What Realizer provides for both line-of-business developers and more sophisticated eod osers is a robust set of tools," Dunkle said.

"It's the best development tool I've nsed," said Josepb A. Tibollo, manager of PC development at Back Information Services Ltd., a Torooto-based data service provider to the aviatioo industry.

Less chance for error

Tibollo said he has found it easier to develop applicatioos using CA-Realizer 2.0 than Microsoft's Visual Basic or Borland International, inc.'s Paradox programming environments because CA-Realizer requires fewer lines of code to write applications, thus reducing tbe risk for errors.

Tibollo said that in his testing since January, CA-Realizer 2.0 has outperformed Visual Basic and Paradox in several areas, including debugging and data arrays-handling capabilities. For example, Tibollo said CA-Realizer can manage 64K-byte "strings" of data arrays, a function Visual Basic does not provide.

CA had planned to ship a Windows-only version of CA-Realizer 2.0 in June bot decided to hold off to integrate cross-platform OS/2 development functionality into tbe Basic package, said Marc Sokol, CA's director of product strategy.

Several CA-Realizer 2.0 beta testers said it was worth the wait. "I like the ability to develop under Windows or OS/2 while doing it for both," said Chris Moore, president of Moore Consulting, a Mesquite, Texas, computer consulting and customized application development firm. Realizer "does not force me to limit my clients to one operating environment," Moore said.

Another CA-Realizer 2.0 advantage, Tibollo said, is that applicatioos 'built with it can be distributed free of royalty or license fees, unlike competitive development tools such as Paradox. "If you use Paradox, you can't have multiple nsers for an application developed without paying a licensing fee. For $99, with all the prodncts we can boild, [Realizer] is great," Tibollo said.

CA-Realizer 2.0 carries an introductory price of $99 through March 1994. After that, it will be priced at $247.

More to come

CA's upcoming delivery plans for Realizer for Windows NT break down into a Comdex/Fall '93 demonstration next week, with beta testing slated to kick off by Comdex/Spring. CA-Realizer includes CA-RET 2.0, a WYSIWYG report writer CA will begin shipping within the next month, and CA-RLE, a Basic language engine subset already embedded in CA-SuperProject for Windows, an automated project management package that began shipping earlier this year.

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Client/server outsourcing

Canada Post pays as it goes

By Mark Halper

Outsourcing vendors and customers searching for a cost/price mechanism for client/server deals might take a page from the recent $1 billion Canada Post Corp./SHL Systemhouse, Inc. contract, which established a fee structure similar to that of a monthly telephone bill.

The 10-year contract allows the Ottawa-based Canada Post to make monthly service change requests and to pay accordingly. Just like a phone customer may decide to add or discontinue a service such as call waiting, Canada Post can add or subtract software services available to any of the 9,000 PC users that SHL Systemhouse will support.

If, for instance, a department that normally has no need for a spreadsheet suddenly requires one for end-of-the-year accounting, SHL Systemhouse would deliver the program. It would then increase the user's monthly charge for access to one of the 1,000 LANs SHL Systemhouse is installing, a move that would factor in licensing fees.

The wave of the future?

This "fee for service" setup represents one answer to the bedeviling question of how to price outsourcing in a distributed computing environment in which the outsourcer is more a service provider than a data processor, Merrill Lynch & Co. analyst Stephen McClellan noted.

"That's the way some of the client/server deals work, and it may be the way more of them go in the future," he said.

In another recent example of client/server pricing, Freeport-McMoRan, Inc. and IBM's Integrated Systems Solutions Corp. devised a labor-based pricing formula [CW, Oct. 11].

"We're buying services, not hardware or people," said Ron Keating, Canada Post's director of information technology strategy. "Within defined parameters of due notice, we can order things up or discontinue service. If we decide we no longer need distributed processors in the Yukon, we can turn off those services."

Underwriting your outsource

In an unusual "partnership," Canada Post is backing loans that SHL Systemhouse needs to purchase computer and communications assets from Canada Post. Sources said the outsourcing deal would never have transpired without Canada Post's financial leverage.

Keating further explained that the "due notice" varies depending on the scope of the requested changes.

The deal calls for SHL Systemhouse to move many of Canada Post's operations off of two IBM 3090 600 mainframes and onto about 400 as-yet undetermined distributed computing platforms [CW, Nov. 1]. The two parties have not yet settled on a server architecture, although SHL Systemhouse said it expects to install about 4,000 LAN nodes by the end of next year.

Also under evaluation are both the Unix and the Microsoft Corp. Windows NT operating systems, according to Greg Jacobsen, president of network services at SHL Systemhouse's U.S. subsidiary.

The deal puts SHL Systemhouse in charge of the entire information utility at Canada Post, including mainframe and distributed services, networking, desktop systems and support, voice, imaging and multimedia.

Profit seekers

As a Canadian crown corporation, $4 billion Canada Post is expected to make a profit and undertake commercial enterprises. SHL Systemhouse is expected to improve internal operations and will help move Canada Post into the electronic-mail business, which is undermining the postal service.

On the internal side, Keating said SHL Systemhouse will first move E-mail, report writing software and database analysis and application development tools from the mainframes to a client/server scheme. That phased migration will take three years, after which SHL Systemhouse will move other programs to the distributed environment, he said.

Keating said "a very high percentage" of Canada Post's 235 information technology workers are transferring to the SHL Systemhouse payroll.

SHL Systemhouse bought most of Canada Post's information technology assets, including the mainframes and about 50 Digital Equipment Corp. VAXs, as well as Canada Post's nationwide communications network comprising Northern Telecom, Inc. packet switches, Motorola, Inc. Codex T1 and T3 packet switches and Cisco Systems, Inc. routers. Neither party told the exact cost.

Kemper melds data centers, picks IBM as backup vendor

By Ellis Booker

Kemper Corp. last week completed a two-month data center consolidation that not only closed its Chicago center and moved its contents, including an IBM ES/9000, into its Kansas City, Mo., facility, but also involved relocating its networking center.

Kemper had a IBM 9021 Model 580 in Kansas City and a 3090 Model 600J in Chicago. Both have been replaced by a two-processor ES/9000, which has been logically split to run the existing software code. The operating system on the ES/9000 is MVS CICS.

The moves are expected to result in an immediate net savings of about $1 million for Kemper Service Co., which provides data processing and other services to its business units.

But there will be greater, noncomputing-related savings down the road, according to Frank Diaz, president of Kemper Service. His unit has an annual budget of about $140 million.

The move was prompted by several additional factors, including Kansas City's lower sales and real estate taxes and the fact that Kemper enjoys lower local telecommunications costs in Kansas City, where it has a fiber bypass network. Kemper's network center was also shifted to Kansas City.

Not a people mover

Networking, in fact, played a significant role in the data center consolidation. For instance, thanks to the extended channel capability of the ES/9000 mainframe in Kansas City, Diaz was able to keep most of his technical staff in Chicago. "It really became more of an equipment than a people move," he said. The staff in Chicago will use local consoles to log on to the host in Kansas City.

The consolidated Kansas City center will process more than 4 million transactions per week, handling data processing for two Kemper divisions. As before, it will operate on a 24-hour-a-day schedule.

In a related move, Kemper announced last week it had selected IBM Business Recovery Services as its disaster recovery provider. IBM outbid Comdisco Disaster Recovery Services, Inc. and Sungard Recovery Services, Inc.

Until now, Kemper has handled backup/recovery in-house, using its Kansas City center to back up both its Chicago center and a smaller site in Milwaukee.

When the Kansas City center was built five years ago, "there was really no good backup scenario" from outside disaster recovery firms, Diaz said. No external service provider, he explained, was able to support Kemper's need for recovery of its mission-critical applications within an hour. But updates in IBM's VM system software have made it more flexible from a disaster recovery standpoint, he said.

However, fully outsourcing the data centers to an outside firm is not in Kemper's foreseeable future, said Diaz, who described his 300-person information systems shop as "already very lean."

"Basically, [no outsourcing proposal] has come close to us in staffing or cost per CPU," he said.

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HP 160	$136,530	82.0	$1,665
DEC 4000/610	$131,728	94.6	$1,392

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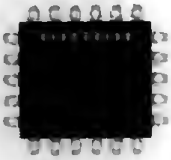
Integrated PCs gathering steam

CONTINUED FROM PAGE 1

simplified system upgrades. It may also mean that due to the improved reliability of chips, PCs will need less support and maintenance, which today constitute a high percentage of a PC's overall cost.

Also, built-in sound and SCSI could in turn prompt a surge in the use of CD-ROM drives and perhaps multimedia in PCs.



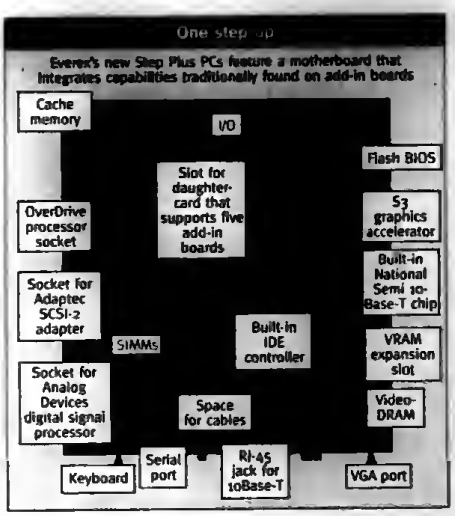
Helping nudge this trend even further along is the Plug and Play initiative backed by Intel Corp., Microsoft Corp., IBM, Compaq Computer Corp. and Phoenix Technologies Ltd. The endgame of this initiative is to make configuration of a range of I/O components and subsystems with operating systems easier and significantly less expensive (see story below).

"The more standardization there is on the motherboard . . . the better and the easier it is for corporate IS," said Andrew M. Seybold, editor in chief of "The Outlook on Professional Computing" newsletter in Brookdale, Calif. Seybold also cited the historical trend toward integrating add-in cards that have achieved a critical mass.

Companies such as Compaq, the IBM PC Co., Hewlett-Packard Co. and Zenith Data Systems kicked off the trend by shipping systems with built-in networking, sound, graphics acceleration and even PCMCIA support on the system motherboard.

The PC Co. will soon add an MWave digital signal processor to PS/2 motherboards and give PS/2 buyers the option to have Ethernet or Token Ring built onto the motherboard as well.

"If you're trying to serve the general market, putting it on the motherboard gives you better reliability and lower costs, and that's what you want," said T. S. Jen, senior technical analyst at the PC Co. Jen cautioned that the PC Co. will likely handle integration differently in its various product lines.



Other offerings

Compaq's newly introduced DeskPro XE line has built-in sound [CW, Nov. 1], and even the new portables from Toshiba America Information Systems, Inc. have built-in graphics acceleration.

But these vendors have limited their integration efforts to certain models and certain features.

Hoping to leapfrog the competition, Everex Systems, Inc. will today announce its Step Plus line of desktops, which come standard with Ethernet, sound, SCSI-2, integrated drive electronics (IDE), I/O and graphics acceleration on the motherboard.

In a nifty design twist, users can configure the system more or less how they want it. While IDE, graphics acceleration and I/O are built-in, users can choose whether they want networking, sound or SCSI. Sound and SCSI are handled via on-board sockets that allow users to pop in the processor of their choice. An intelligent BIOS automatically senses what components are on the machine and configures it appropriately.

Must-haves

With the preponderance of networked PCs that use system-slowing graphical software, providing networking and video acceleration are generally a must. On-board SCSI means users can easily add SCSI peripherals such as CD-ROM; built-in sound allows them to build in multimedia support as it becomes more prevalent. Also, digital signal processors can be programmed to work as modems.

"That's a neat trick — it's a surprisingly innovative design, especially since it's configurable," said Dean McCarron, analyst at Micro Design Resources in Scottsdale, Ariz. He said Everex will take the integrated PC concept further than other vendors at Comdex/Fall '93.

Motherboards with various functions integrated on them now appear to be an inexorable trend, according to observers such as Giusto. "This is a solid trend — desktops are inherently leapfrog products, and you can bet that as soon as this is out, the other vendors are going to do it and try to do more," Giusto said.

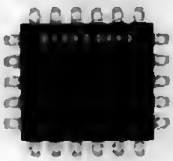
Corporate users applauded the trend but said vendors must give them the flexibility to gain features without losing current add-in investments.

"Putting it all together makes sense if you can get the overall price down, simplify things and get it into a smaller package," said Robert McLoughlin, assistant vice president of PC procurement at New York Life Insurance Co. He also said integrating technology on the motherboard should eliminate the troubleshooting nightmare caused by add-in boards that have come loose or lack driver support.

Adding functions to the motherboard cuts not only direct costs for end users but indirect costs as well. For example, manufacturers can make smaller systems, which in a highly competitive market such as desktop PCs means still lower prices for end users.

Also, users are expected to realize bigger savings from reduced labor costs and fewer configuration problems. Consider that for every feature built into the motherboard, a PC manager does not have to assign personnel to rip the lid off PCs to add cards. According to many consultants, the lion's share of a PC's true cost comes from labor and other costs.

Gartner Group, Inc. in Stamford, Conn., estimated that a single PC costs roughly $2,000 a year to administer and support.



Abraham Chait, project manager at Pacific Gas & Electric Co. in San Francisco, agreed that on-board integration of system components has typically meant lower costs and smaller footprints. While increased levels of integration are "a fantastic idea," Chait said he worries about potential replacement costs.

"The downside is what it costs to replace the motherboard after warranty," Chait said. Adding features to the motherboard means that the motherboard may have to be replaced if a component goes bad, he said, adding that would be palatable only if motherboard replacement costs fell under $1,000 after warranty.

Senior editor Ed Scannell also contributed to this article.

New models

Everex's Step Plus models include the Video Electronics Standards Association's VL local bus, in a fully loaded configuration, with National Semiconductor Corp.'s Ethernet chip, SCSI-2 and sound included, list price ranges from $1,299 for a 25-MHz 486SX to $2,249 for a 33/66-MHz DX2, without hard drives. Everex officials and analysts said this would save users at least 20% more than buying add-in boards, plus leave users five open slots. For instance, the Analog Devices sound chip costs $8, compared with a Creative Devices, Inc. Soundblaster Card, priced at $149.

Everex climbs back

Everex finds itself ahead of the market in desktop design with its Step Plus family, which features integrated motherboards. The question is, can it make the most of it?

First, as Everex surfs the crest of the integration wave, the competition is paddling furiously to catch up. Most vendors have started to build more functions onto motherboards, and the rapid pace of development cycles has led most analysts to give Everex at best a six-month window on the market.

Having just emerged from Chapter 11 bankruptcy protection, the company knows it must first convince users it is a viable firm with a viable product. Then it has to prove it has the manufacturing capability to produce the product.

If it has problems manufacturing its new line, its window of opportunity would probably slip to four months. Everex cannot afford an encounter with the backlog problems that have plagued market leaders this year.

Everex acknowledged the obvious: Its future rests on how the market receives the Step Plus. "We know we probably only have one shot at this, so we had to make it good," said Chet Dayal, senior product manager of desktop systems at Everex in Fremont, Calif.

Everex acknowledged it will likely need additional manufacturing capacity, which it said it expects to find, though it declined to say where.

—Michael Fitzgerald

Switched on

Last week, the Plug and Play coalition, now backed by 20 companies, delivered the final specification for its BIOS. The spec is a set of instructions embedded in PCs that will make it easier to configure and install more advanced system designs.

Microsoft said its first operating system to take advantage of the spec will be the next version of Windows, expected in the second half of next year. The first PCs to take advantage of the Plug and Play BIOS spec should reach the market early next year.

"The final Plug and Play specification brings us a lot closer to resolving device conflicts and making PC configurations hassle-free," said Dale Buscaino, vice president of research and development at Phoenix Technologies. *—Ed Scannell*

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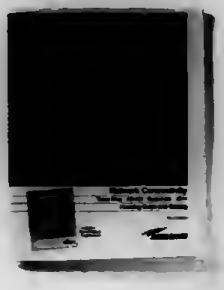

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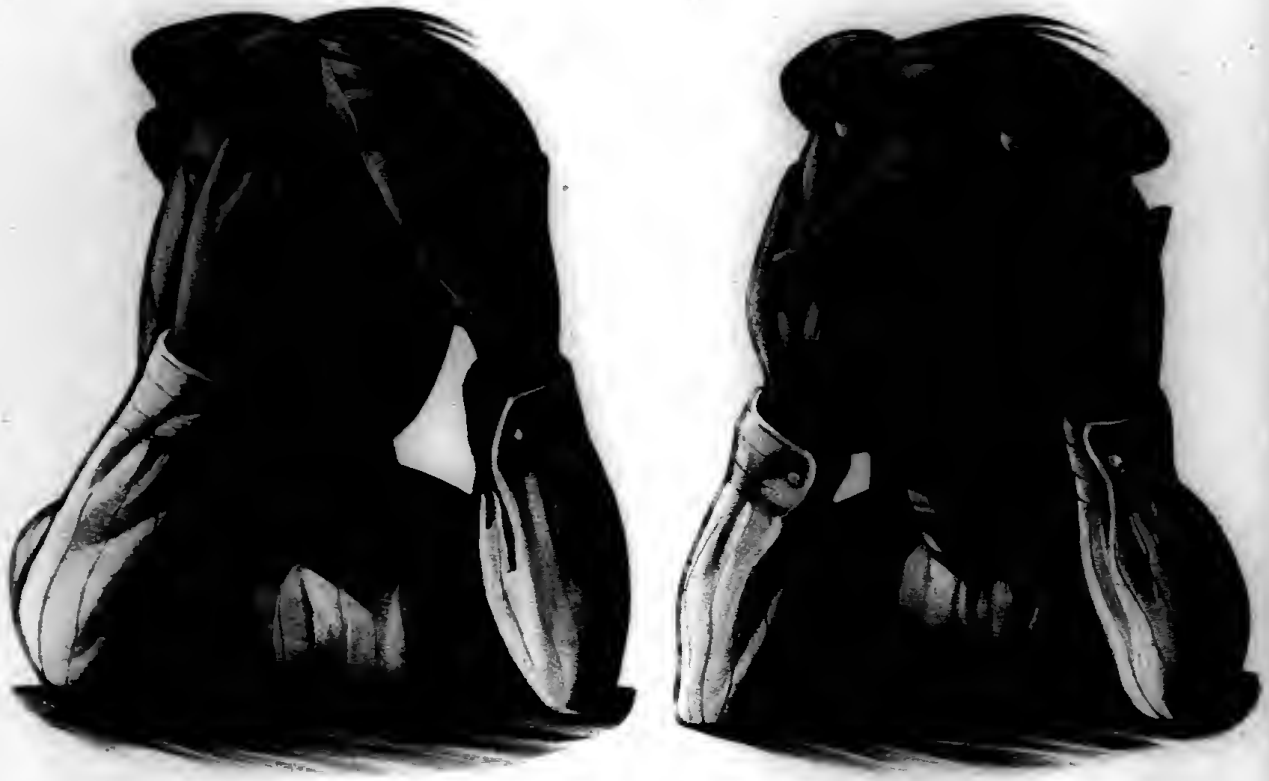

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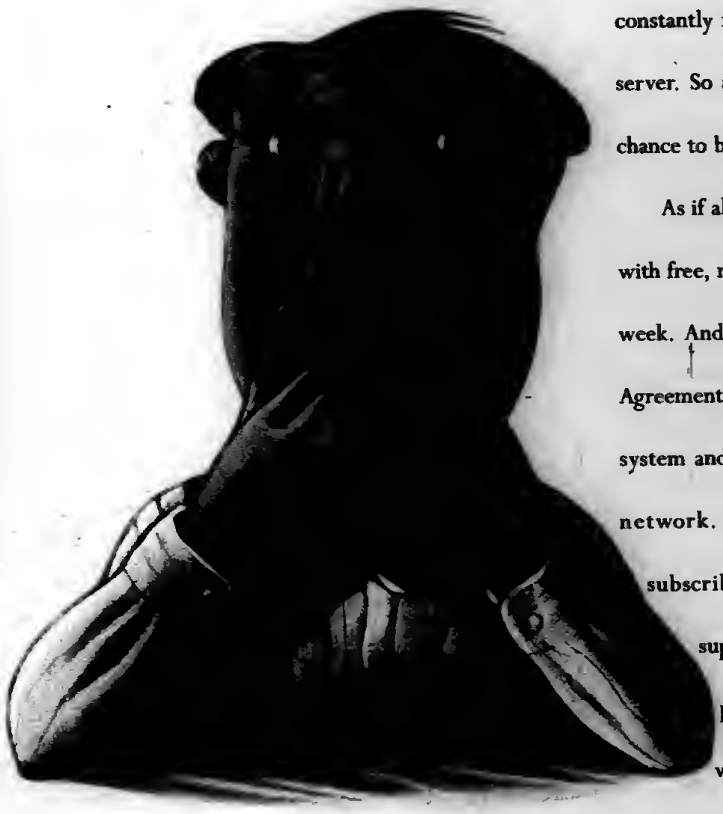

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Multimoola

Next week is Comdex, the big tamale of all computer trade shows and the one the industry looks to for the trends to watch in the coming year. You can bet that one mega-theme this year will be multimedia.

That's not surprising. The incredible shrinking margins in hardware and software have vendors groping for a reason to get users to spend money. A lot of them see salvation in the eye-popping investments computer and communications firms are making in interactive multimedia.

So maybe now's a good time to think about how multimedia is going to affect you, the IS professional. It seems like every vendor I meet lately has a plan for incorporating multimedia into its products. But when asked to define how that costly capability is going to be used, they always mention the same examples: computer-based training, sales presentations, airport kiosks, maybe some user interface stuff.

Hardly the stuff of which revolutions are made. For all the excitement about multimedia, I've still seen precious little justification for its high cost. And it is expensive stuff.

For multimedia to make any headway anywhere outside of games and training, the infrastructure in corporations and in communities will have to be improved drastically. We're talking decades to do that. It took cable TV more than 20 years to reach 70% of American homes. How long will it take corporate America to upgrade to one of the new high-speed technologies that supports multimedia? (Hint: Don't hold your breath.)

And who's going to create all these nifty presentations? There's a dearth of multimedia authoring software out there that doesn't require an engineering degree to use. Corporations are not going to spend the bucks to train business professionals to be amateur television producers. Nor will they sink a lot of money into building multimedia production departments unless the payback is clear. Which it isn't.

And consider support requirements. The last thing corporate IS wants to tackle right now is maintaining a complex, multigigabit network shooting sound and video files to the far reaches of the world. Heck, I'm still struggling to get my SoundBlaster card to work with most of my stand-alone Windows applications. Multimedia requires far more powerful hardware and communications capabilities than most corporations can muster today. The upgrade costs will be staggering, but they'll pale in comparison to the support problems.

I won't even mention the copyright issue.

If you're going to Comdex next week, prepare to be impressed by the dazzling multimedia demos on display. But if you want to plunk down your credit card to invest in the multimedia revolution, better have a long talk with your CEO first.

Paul Gillin, *Editor*

Fighting only half the client/server battle

The fine article "TI tools will keep legacy systems going" [CW, Oct. 18] describes how to migrate code from legacy mainframe applications to client/server environments.

That's great, but it's only half the battle.

These tools don't address the migration of the actual legacy data — data mired by format inconsistencies, mixed domains such as free-form comment fields that fail to map to relational tables, anomalies in names, addresses and other entities that must be identified and consolidated and sundry other data contaminants.

Gartner Group, Inc. warns that most re-engineering efforts will fail because of a lack of attention to data quality. When raw legacy data is migrated to a new environment it exposes your new system to data contamination that will destroy the value and integrity of your information.

A successful strategy places data re-engineering — the automated conditioning, standardization and consolidation of legacy data — directly on the critical path of business process re-engineering.

George Burch
Chief technology officer
Vality Technology, Inc.
Boston

The answer is people, not tools

Your article "Think big picture for client/server" [CW, Oct. 25] correctly identifies the overwhelming variety of technologies, vendors and users involved as the major obstacle to successful implementation of client/server systems. The solution proposed, however, seems like more of the same: more tools and even more technical knowledge.

Salvation lies not in the tools but in the people. In a word, the answer is teamwork.

Systems development life cycle methodologies such as Method/1 and Information Engineering were successful only to the degree to which they were able to subdivide complex, interdisciplinary projects into portions that could be completed by autonomous groups with homogeneous skills.

However, it seldom worked well and will soon not work at all. The relentless advance of new technologies such as client/server is rending this artificial task structure. The requirement today is to help groups that *must* work together.

Do it for the productivity, do it for the satisfaction or do it for the health of your staff. Do it.

No grousing here

In your article about Banyan third-party developers, "Third parties grouse over Banyan's GUI plan" [CW, Oct. 4], you implied that LANshark Systems, Inc. was one of the "disgruntled" third-party developers upset with Banyan for competing with those developers.

We are *not* upset with Banyan about this particular issue.

In fact, Banyan solicited our input for this project more than three months before and was very up front with us about its development plans. All of the third parties that were invited to bid on the graphical user interface development project were similarly informed.

We appreciated Banyan's solicitation and were very happy that it shared its development plans with us far enough in advance to prevent any problems.

Other third-party developers, knowing that Banyan was pursuing this development path, chose to continue development on their products and may indeed now be upset with Banyan. We are not among them.

Scott Sharkey
President
LANshark Systems, Inc.
Reynoldsburg, Ohio

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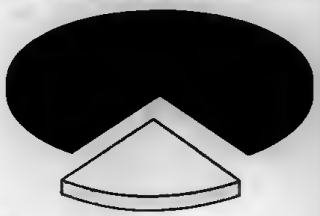

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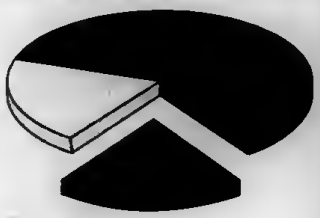

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Think twice before you say 'open'

Joanne Kelleher

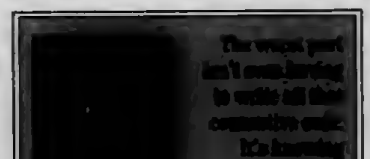
A word in all wise computer systems sales personnel: If you use the word "open" these days, you'd better be talking about the office door or trade policy or seating on the shuttle flight you're about to catch. Openness is a fine adjective in any of those contexts, but it's poison as a selling point. A couple of stories from a conference I recently attended:

A few hours before his speech, one of the presenters worried about whether the phrase "client/server" in his session title might actually turn out to be a turnoff for the audience. "Nah, I guess that's OK," he said, deciding that there were probably a few good miles left in that concept. "The really important thing is that I *never* bring up 'open systems.' "

Fast forward a few hours. Sessions are over, and a top IS executive from a major consumer products company jokes about how he's simply fed up with that damned description, especially as it emerges from the mouths of system vendors. "You know what I do?" he confesses gleefully. "I give each of my vendors a stack of six colored chips — like the ones in casinos — and I tell them, 'Every time you say it, you have to give back one chip. Run out of chips and you're gone.' "

Next day, another CIO pridefully describes a new LAN-based system being rolled out at his organization. It's a great system. He's very proud of it and sure it will bring major productivity benefits. His only regret? His organization could have planned better and gotten the application on stream faster if he'd known just how much connective code had to be written to get all the pieces to work together.

That's the thing, you see. It's hard enough to accurately estimate how long a development project is going to take and how much it is going to cost without having to contend with inflated claims and unrealistic promises. And the worst part isn't even having to write all that connective code; it's knowing you've been led down the proverbial primrose path. It's also having to listen to the same supplier insist that nothing like this has *ever* happened with its system before.



Sure. Just like your mechanic can't hear the nonstop engine clanging that just happened to start as you pulled out of his service bay.

The thing is, there's been so much hype and abuse that people pay about as much attention when a vendor trumpets the openness of its product as the average New York pedestrian pays to a car alarm. OK, maybe just a little more. Because, after all, there *is* one way that a claim of open systems can dependably benefit a purchaser. Here's how one IS exec explained it to me:

"All I do," he said with a wide grin, "is tell my vendors, 'Since your systems are open and work with everything, I decided I should check out the prices of some other systems. I had no idea how cheap things were these days.' " He swears it works even better than the fabled Amdahl mug waved in front of an IBM sales rep.

So maybe, on second thought, you vendor types ought to keep it up. Times are tough, and it's kind of nice to see IS executives enjoying a good laugh.

Kelleher is *Computerworld*'s features editor.

Rapid development melts nasty buildup

Patricia B. Seybold

Bureaucracy can't stand up to rapid application development. The two are mutually exclusive.

If you don't believe that, talk to Bill Kilmartin. Kilmartin is the comptroller of the Commonwealth of Massachusetts, where the budget is more than $20 billion per year, more than 75,000 employees are on the payroll and bureaucracy has been elevated to a fine art.

Kilmartin has problems — very large problems. He has millions of dollars worth of legacy systems that don't give his end users or his stakeholders the information they need and can't even pay his bills in a timely fashion.

Armies of consultants or contract programmers can't dissolve years of fossilized practices. The only thing that will is exposure to fast, iterative development.

The current systems aren't very good at contracting for goods and services, either. Procurement procedures are so ossified that it takes 90 days just to gain approval to do business with a vendor and 28 laborious steps to award a contract. Then it takes at least three months to process one once it's been awarded.

To compound the situation, user departments are each mired in their own bureaucratic morasses. None of them can fathom moving quickly, and each runs its own duplicative systems because none would trust the information or the procedures put in place by another.

It's hard to know where to begin trying to make a dent in 20 years' worth of fossilized practices. But Kilmartin took 55 of his top people and their key users off-site for a four-day exposure to state-of-the-art business process redesign and rapid application development.

He broke his troops into high-performance teams and seeded each team with people from the private sector who had been instrumental in leading their organizations through large-scale change.

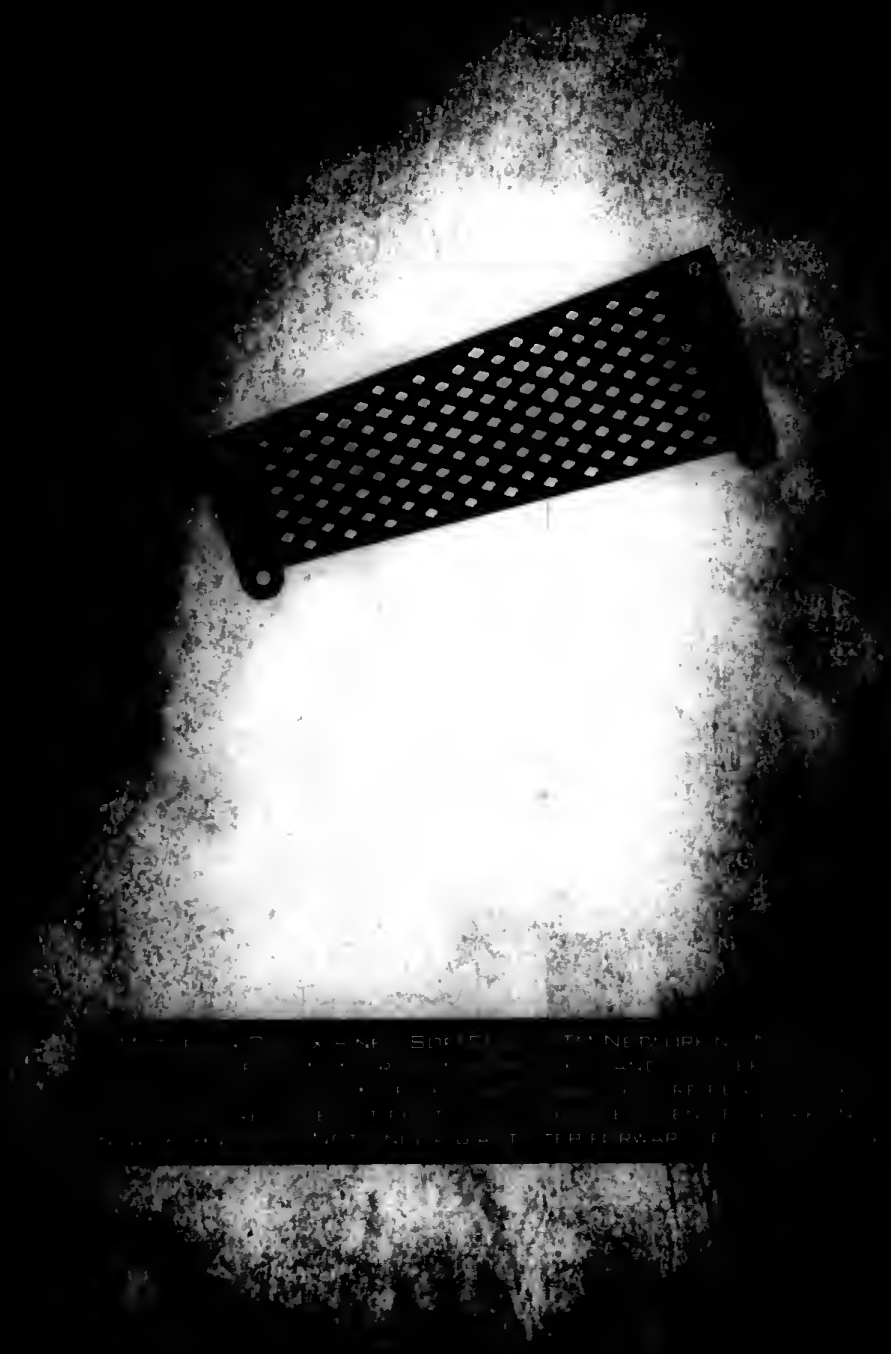
For the first two days, the teams acted the same way they do in state government. They deliberated. They debated. They blamed the other guy for the current state of affairs and scoffed at these high-tech tools. But gradually, with a great deal of prodding and a set of impossible deadlines, they began to experiment. They rolled up their sleeves and actually designed streamlined processes.

By the end of the four days, the teams had accomplished the unbelievable. They had built a fairly comprehensive process and object model of the state's financial systems. They had built and delivered a first-pass, working employee information system. They had designed a new business process for the daily disbursement systems and mapped out the game plan for piloting systems in four major departments within the next six months.

They had redesigned the entire procurement process, designed a pilot kiosk-based application for giving citizens access to government information and kicked off a pilot project to deliver welfare payments via electronic funds transfer. They had mapped out an architectural strategy for migrating to distributed computing. And they had wrestled with the organizational changes that must be made for any of these reforms and pilots to take root.

Can this kind of catalytic experience produce lasting change? I believe it can. I know that in the usual course of things, lessons learned and vows made while away from the office are often swallowed up by the bureaucratic pull of routine. But show people what's possible with rapid, iterative development and they'll never be happy with two- to five-year development cycles and the status quo again.

Seybold is president of the Patricia Seybold Office Computing Group in Boston. Her Notes address is Patricia Seybold@PSOCG. Her Internet address is PSeybold@MCImail.com.



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intel inside

OS/2 makes headway in corporate arena

Deals show Version 2.1 giving Windows NT a run for its money

closer look OS/2

By Ed Scannell

With an uncharacteristically gritty determination, IBM's Personal Software Products group recently knocked some holes in the wall of user skepticism that has kept OS/2 off most corporate desktops.

When Personal Software Products delivered OS/2 2.1 this past June, the company delivered a product that crystalized a six-year ambition: a 32-bit desktop operating system that reliably runs DOS, Windows and OS/2 applications side by side with the thousands of mission-critical applications developed by corporate accounts.

In the last couple of months, Personal Software Products has signed a handful of impressive licensing deals for OS/2 2.1 in the U.S. and overseas totaling more than 200,000 copies. Sales of the OS/2 2.x series are between 2.5 million and 2.8 million copies, according to most industry researchers, and should surpass 3 million by year's end.

While reliability and more robust features have helped in Version 2.0's success, the fact that some large accounts say it compares favorably to Microsoft Corp.'s Windows NT has also contributed.

"The truth is that OS/2 is the only 32-bit desktop operating system that runs reasonably well on the hardware that is out there," said Neal Hill, a former senior software analyst at Forrester Research, Inc. in Cambridge, Mass. "These corporate deals are bubbling up because [OS/2 2.1] can do things like maintain three or four communications sessions reliably out of a client back end."

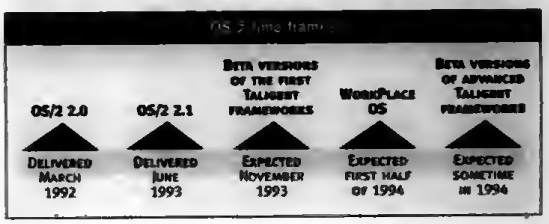
Ferengi debuts

With the Comdex/Fall '93 introduction of the Windows-less version of OS/2, code-named Ferengi, IBM hopes to keep up Version 2.1's momentum.

Because it works seamlessly on top of DOS and Windows and is expected initially to cost $50, Ferengi should give IBM some teeth in its battle against Microsoft in the very lucrative Windows market.

"There are a hell of a lot of PCs out there without OS/2, and the only shot IBM has to get users to make [the conversion] is to make it painless and inexpensive. I think Ferengi deals with that issue," said one Windows developer.

If Ferengi can yank large numbers of Windows users into the OS/2 camp, more large software suppliers might be interested in writing OS/2-specific applications, something the system has always needed badly. And if large independent software vendors write more applications, there will be more pressure on large systems makers to exclusively bundle the operating system, something OS/2 needs even more.



"You have to provide an OS/2 kicker at virtually no cost to OEMs; otherwise, they have to replace the stuff they are shipping [DOS and Windows] and pay double licensing fees," said Randell Flint, president of Sundial Systems Corp., a maker of OS/2 productivity applications in Seal Beach, Calif. "This way, OEMs can just

OS/2, *page 42*

Object-oriented software

Borland technology chosen for electronic trade network system

By Michael Vizard

It looks like some of Borland International, Inc.'s investment in object-oriented application development is finally beginning to pay off.

Thomson Financial Services, a Boston-based unit of Thomson Holdings Ltd., is less than two months away from going live with Anvil, its electronic trading system for variable-rate municipal securities that is based largely on Borland technology.

Currently in beta testing at more than 20 securities firms, the financial industry's first municipal trading system calls for the installation of Borland's Quattro Pro for Windows spreadsheets and Paradox relational databases at every trader's desktop, Thomson executives said.

Those applications, which will process about $10 billion worth of trades a day, will be linked to an Interbase relational database running on a fault-tolerant local server from Stratus Computer, Inc., which in turn will be linked to another Stratus system in the company's Boston office. That server will then forward transactions to a SQL database from Sybase, Inc. that runs on a cluster of servers from Sun Microsystems, Inc.

Source: Thomson Financial Services, Boston

Good news

Since lowering the price of Quattro Pro for Windows to $50, Borland has sold more than 500,000 copies.

. . . and financial concerns

While Borland's recent spate of financial instability may have given other users pause, Fred Cohen, Thomson's director of technology, said that Borland's technology is strong enough to guarantee it would be acquired by another vendor if the firm were not able to recover itself.

"I think the biggest problem Borland has with Paradox is that it's priced so inexpensively that nobody takes it seriously. All the databases on the network will be synchronized, and the Stratus systems will guarantee delivery of the trades to the Sybase database," said Fred Cohen, Thomson's director of technology. Paradox's base price is $149.95, while the Workgroup Edition, which includes SQL links and Borland's Object Exchange (Obex) technology, is priced at $495.

Shared technology

Due to the synchronization requirement, Cohen said he opted to deploy Borland products on client desktops and local servers because they share the same underlying database engine technology that Borland acquired from Interbase. As such, it is easier to share data across Quattro Pro spreadsheets and Borland databases.

Cohen said Borland has done a substantially better job in terms of integrating SQL calls seamlessly into its Quattro Pro spreadsheet by encapsulating them in objects. In contrast, other products, such as Excel from Microsoft Corp., essentially require users to exit their spreadsheet application to query databases, according to Cohen.

At the same time, Cohen credited Borland with providing a more robust application development environment in the form of ObjectPal than the Visual Basic environment that Microsoft provides with its Access database.

"It's taken Borland a while to bring products to market, but it's really starting to pay off now. We originally were building the clients in C and were into hundreds of thousands of dollars of overtime and weeks behind schedule. The problem was that the original approach was archaic from the start and much too labor-intensive. Now we cut that development time by 80%," Cohen said.

Since Thomson had already established network links to brokerage houses as part of its other financial services, Cohen said the project has cost the company about $3 million to implement, which will be recouped by charging customers for access to data in the Boston office.

Thomson plans to expand the service to 100 securities firms and will adopt Borland's Obex technology to link its applications with other desktop applications.

"We'll provide some high-powered analytical tools, but the traders will have other applications on their desktops that we'll want to tie in to," Cohen said.

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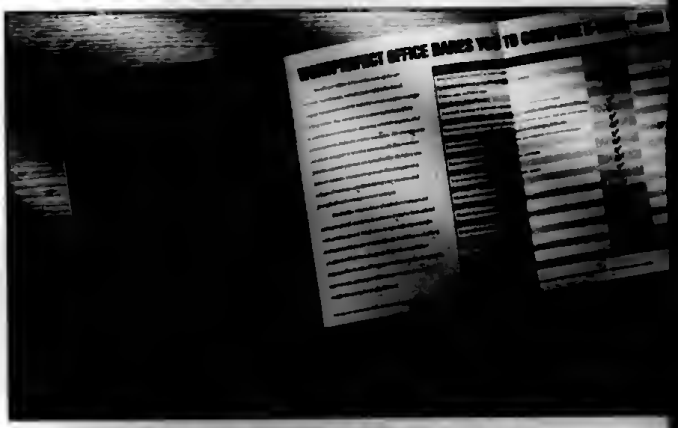

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WordPerfect® Office

Carole Patton

Organizing your time

You can set heads nodding in any American corporation by talking up good management practices like setting goals and giving employees feedback. Trouble is, many managers are stretched so thin they can barely remember where they are or where they are supposed to be, let alone track all the people and projects under their supervision.

Software tools can help. I'm not talking about traditional project management packages like Project, Timeline or Super Project. Those are all fine for what they do, but sometimes what's called for is something of a more personal nature.

One product tailored for busy managers on the go that is definitely worth a second look is ManagePro 2.0 from Avantos Performance Systems in Berkeley, Calif. A rare bird indeed, this program is one of my favorite finds.

Written by former management consultants Norm Wu and Gerald Huss, ManagePro defines a whole new software category: It can actually help you manage people better, delegate more effectively, set clearer goals and provide needed feedback.

In its earliest iteration, Version 1.0, ManagePro was more of a high-level planner. But the latest version, which shipped last month, includes a daily calendar and to-do list, making it a really nice "home base" for managers.

The program's well-designed interface centers around a View Bar (like a tool bar) divided into Goals, People and Actions. Double-clicking on a name calls up pertinent job information (rate of pay, date of hire, etc.) and a personal data section lets you record other handy facts like a mobile phone or beeper number.

All entries are in chronological order and all notes are time-stamped. A Goal Planner surveys goals in Gantt-chart form and includes a Status Board, where colored triangles flag specific problems.

The best part of this program is its "people" orientation. ManagePro contains an on-line Advisor — it's like having your own management consultant.

ManagePro Version 2.0 supports groups of people working together through levels of access based on permissions set up by the administrator. For example, employees can see their "Progress" file, but not the supervisor's notes from a counseling session. You can extract your database, work with it on the road and come back and integrate your work on a record-by-record level.

Managepro 2.0 lists for $395, but the street price should be closer to $249.

Personal management

If you're interested in a full-featured personal information manager (PIM), Packrat from Polaris Software in San Diego may be your first choice. But for now, make sure you're buying Version 4.1.

In August, I alerted you to problems with the Packrat upgrade (Version 5.0) and reported that a fix was on the way. But even the latest fix (Version 5.011) is giving users major problems, especially those who use Stacker. Polaris' testing confirms that temporary Packrat files have to be written to RAMdrive or to an unstacked drive or they'll be lost.

But if you bill time on an hourly basis and a full-featured PIM like Packrat is overkill, look at Time Logger from Responsive Software in Berkeley, Calif. With it, you click a button when you start a task and when you finish and type some information about what you did in that time. Time Logger keeps track.

This program provides reports but not invoices. (You can copy data in tab-delimited format into Microsoft Excel, Word or even your favorite DOS-based accounting package.) Time Logger can be used for billing purposes, to track an office full of people or to keep tabs on corporate resources like computers or conference rooms. The product shipped last month and is sold directly from Responsive Software for an introductory price of $99.

Patton is president of the Mendham Technology Group in Mendham, N.J., which produces Client/Server Summits for corporate strategists. Her MCI Mail address is 401-4869.

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Bill Jones, MIS, age 38

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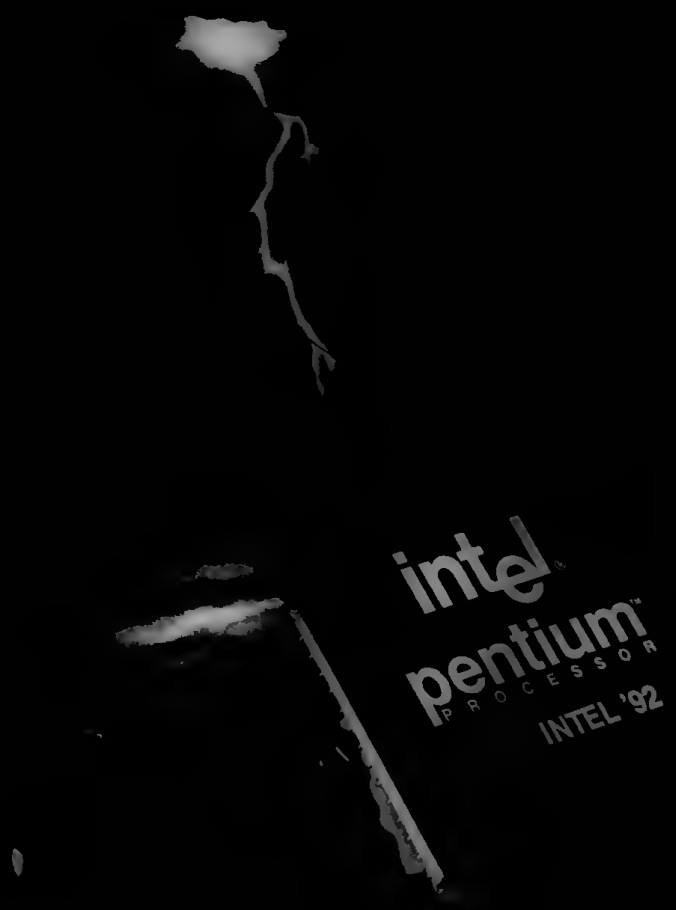
intel
pentium
PROCESSOR
INTEL '92

HOW WE'RE GIVING PCS ELECTRIFYING POWER.

intel inside
pentium PROCESSOR

There is a new source of computing power. It's capable of executing two instructions at once. It's produced processing speeds over 100 MIPS. It's the next generation of compatible power. It's called the Pentium™ processor. And this brief will tell you how its technology is making PCs run faster today.

THREE WAYS TO MAKE FASTER PCS.

Faster PCs start with faster microprocessors. And there are three ways to make faster processors:

1. Increase the number of transistors. Today, the use of sub-micron components lets designers fit more than 3 million transistors on a single chip. So we can integrate components such as math coprocessors and caches right onto the CPU—dramatically cutting access time.

2. Increase the clock speed. Twelve years ago the clock speed ticked along at a measly 4.7 MHz. Today we can run at an astonishing 66 MHz—and we're still pushing for more.

3. Increase the number of executions per clock cycle. Using new superscalar technology, our processors are now capable of executing two instructions per clock cycle.

MIPS

THE NEW PENTIUM PROCESSOR IS FULLY SOFTWARE-COMPATIBLE WITH OUR INTEL ARCHITECTURE FAMILY.

WORKS IN PRINCIPLE AND IN PRACTICE.

Employing the techniques above, we've created the new Pentium processor. A processor that is over 300 times faster than the first PC microprocessor.

THE PENTIUM PROCESSOR. A MODEL OF EFFICIENCY.

The Pentium processor can be described as a super-efficient factory. Its main assembly line is its superscalar technology—which enables information to be processed simultaneously through dual pipelines. To accomplish this, the pipelines divide up an instruction, then send it through five stages. As it passes from one stage to the next, the pipeline is free to begin another instruction. Speeding up operations substantially.

PUMPING DATA THROUGH.

The rest of the features on the processor are designed to keep that main assembly line working at peak capacity *(see diagrams)*. These features, along with the superscalar technology, help the Pentium processor to crunch more than 100 MIPS at a clock speed of 60 MHz.

HOW FAST DID YOU SAY?

Twice the performance of our own Intel486™ DX2 66 MHz processor. Plus, the redesigned floating-point unit on the Pentium processor offers up to five times the performance of the Intel486 DX2-66 CPU for math-intensive applications.

A PHOTOGRAPHIC MEMORY RIGHT ON BOARD.

Now there are separate 8K code and data write-back caches that reduce cache conflicts and increase system performance. With an on-chip cache, we keep essential information within an arm's reach of the main assembly line. So that instructions and data can be fetched without wasting any time. And a full 95% of the time, the information is right at hand.

THINK OF IT AS A 64-LANE FREEWAY INSIDE YOUR CPU.

To get data really moving, we doubled the size of the bus on the first Pentium processor. This allows twice as much information to be fetched at once. There's even a burst mode for high-speed information transfer—so more information gets to where it's going quicker. Plus, automatic data integrity checking to be sure the right data is being moved.

WE PROGRAMMED THE CHIP TO BE CLAIRVOYANT.

We've given the Pentium processor an intelligence of its own—a small cache known as the Branch Target Buffer, which predicts which way an execution will branch. When the prediction is correct (and it is over 90% of the time), the branch is executed without delay—enhancing performance.

WHO SAID YOU CAN'T DO TWO THINGS AT ONCE?

The first Pentium processor has two side-by-side pipelines for integer instructions. This enables the processor to execute two instructions at once. After grabbing and partially decoding an instruction, the Pentium processor determines if the instruction can be executed in parallel with the next instruction in line. If it doesn't detect any dependencies, the two instructions are sent along the parallel pipes for execution.

A BIG POINT OF DIFFERENCE IN MATH-INTENSIVE FUNCTIONS.

We've added specialized pieces of hardware to speed up the three most common floating-point instructions—a multiplier, a divider and an adder. With these features, most floating-point instructions can be executed in a single clock cycle. Giving you up to five times the floating-point performance of Intel486 DX2-66 CPU-based computers.

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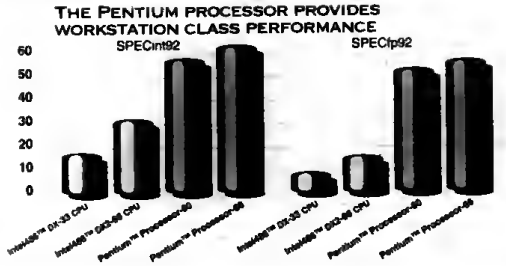

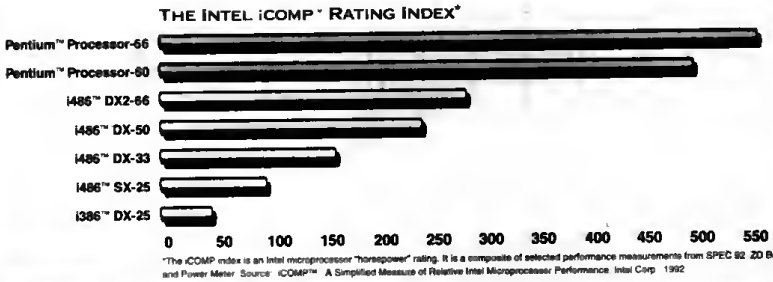

*The iCOMP index is an Intel microprocessor "horsepower" rating. It is a composite of selected performance measurements from SPEC 92, ZD Bench, and Power Meter. Source: iCOMP™: A Simplified Measure of Relative Intel Microprocessor Performance. Intel Corp. 1992

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OBTAINING THE POWER.

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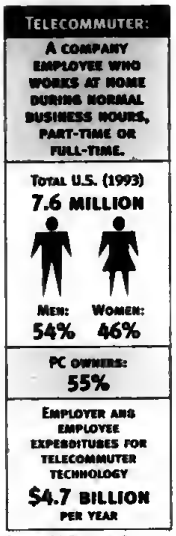
Telecommuter quandary: Who buys the PC?

By Mitch Betts
ARLINGTON VA

Lurking behind glowing telecommuting reports is an issue for corporate managers that gets down to the nitty-gritty: Should the company buy two PCs for telecommuters — one for office use and one for days worked at home?

That was one of the great debates featured at the recent Telecommute '93 conference here. Edward Kirk, manager of telecommuting at Bell Atlantic Corp. in Silver Spring, Md., argued that telecommuters, who typically work two or three days at home and the other days at the office, should buy their own PCs. He cited the following reasons:

- Duplicate PCs make it harder to cost-justify telecommuting.
- Cost exposure is limited if telecommuting does not work out.
- It is harder to track or police off-premises equipment.
- Duplicate PCs for telecommuters appear wasteful to other employees.
- From a telecommuter's perspective, it is easier to upgrade and tailor his system without the corporate bureaucracy.



Source: Link Resources Corp., New York

Each year, telecommuting expenditures total $4.7 billion for PCs, fax machines, phones and network services. These costs are shared equally by telecommuters and employers, according to Link Resources Corp., a market research firm in New York.

"Just as workers buy their own cars to commute to work, now they are buying their own computers to telecommute," said analyst Thomas E. Miller, who conducted the Link study.

Drew Deskur, director of telecommuting and manager of telecommunications at Shiva Corp. in Burlington, Mass., took the other side of the debate. He argued that if companies do not pay for the home-based PCs, telecommuting will never be broadly adopted and companies will lose their productivity and employee-retention benefits.

In other words, Deskur said, employer stinginess will turn telecommuting into an executive "perk" for upper-class employees who can afford their own PCs.

Darold Jackson, director of information systems at Monsanto Co. in St. Louis, said he decided to supply PCs and software to his firm's telecommuters partly because it would ensure a standard set of hardware and software to support.

Jackson, a speaker at the conference, said Monsanto strikes a fair deal with its telecommuters: The company provides the PCs and telecommunications, while the telecommuter provides an ergonomically acceptable office at home. "No PC on the dining room table," he said.

Some companies may be concerned that the home PC will be used only 20% of the time, doubling the technology investment. But in Jackson's opinion, "Since we're getting more productivity [from the telecommuters], I don't really care."

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Anxiously awaiting Taligent

Personal Software Products' long-term axe in the hole is the component technologies, and eventually, the finished operating system that Taligent, Inc. is expected to deliver in 1995.

The finished Taligent operating system, on paper, is more ambitious than Microsoft's Windows NT or its successor, Cairo.

[illegible] venture of IBM and Apple Computer [illegible] is intended to be portable and object-oriented — from its user interface down to the hardware.

"What IBM is trying to do is leapfrog Microsoft to set the next-generation operating system standard," said John Dunkin, a vice president at Worldgroup Technologies, Inc., a consultancy in Hampton, N.H.

Long before the shrink-wrapped version of Taligent is available, the company will ship much of the operating system's technology in what it calls application frameworks.

The first beta version of the application frameworks is scheduled for delivery this month to a limited number of developers. The technology allows OS/2 2.1 developers, for instance, to start programming Taligent-like capabilities into their applications.

A problem for some OS/2 developers in terms of generating interest is not knowing specifically what features the frameworks will allow them to mold into their applications.

Some of these capabilities include making OS/2 applications more portable across multiple environments or the ability to include three-dimensional graphics.

"If you can easily deliver the client portion of your application across all operating systems in your enterprise, your life is easier because you are not seen as the Big Brother dictating what sort of hardware someone has to run," said Bob Holmes, manager of evaluation technology at Southern California Gas Co.

The next set of application frameworks, the beta versions of which are expected sometime in 1994, will expose more of the Taligent programming model to OS/2 developers.

"The document framework [main programming model] around Taligent is where applications get the ability to collaborate with other applications in real time," said Kathy Bohrer, Personal Software Products' lead architect for object frameworks. "They will also get all the substructures for the user interfaces."

— Ed Scannell

OS/2 makes headway

CONTINUED FROM PAGE 37

throw a CD [Ferengi] in their boxes for $50."

A version of OS/2 that could cut into sales of Windows 3.1 would be one that runs comfortably in 4M bytes of memory (the product currently needs at least 8M bytes to do so).

Company officials promised earlier this year that such a version would be available by year's end. It appears, however, that Personal Software Products is bogged down in the project, and sources say not to expect it until next year.

"There was some older code [from earlier versions of OS/2] that was never changed from 16- to 32-bit," said one developer familiar with the project. "I believe it is mostly code written by Microsoft."

The Microsoft challenge

But while IBM now has OS/2 rolling, it must still remain light on its feet to avoid the logs Microsoft will inevitably throw across its path.

Microsoft is already beating the marketing drum for Windows 4.0, code-named Chicago. Whether or not the product turns out to be a reliable 32-bit operating system on the order of OS/2 2.1, the marketing efforts may serve to distract some potential OS/2 users.

And in an attempt to bolster the hundreds of bundling deals it has with OEMs for DOS and Windows, Microsoft this week is expected to announce that a large number of OEMs will bundle its Windows for Workgroups 3.11 on both server and desktop machines. Version 3.11 adds a 32-bit file system and peer-to-peer networking to Windows 3.1.

More importantly, Windows for Workgroups 3.11 continues to support Microsoft's 32-bit virtual device driver (VXD) model, which OS/2 and Ferengi do not support.

Even though few Windows applications support VXDs, this feature remains another grenade Microsoft can lob toward IBM's claims that OS/2 is a better Windows than Windows.

Continued on page 43

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*CD-quality audio, local scanner support and internal floppy drive available as options. Speakers not included. †International Data Corporation, X Business Group, January 1993, by sales revenue.

Two future products that could help Personal Software Products be an effective moving target against Microsoft are Taligent and WorkPlace OS, the microkernel version of OS/2.

WorkPlace OS, based on an adaptation of Carnegie Mellon University's Mach microkernel, is a scalable operating system designed to run, eventually, on every class of system from IBM's PowerPC-based servers down to handheld devices.

Split personality

It will support symmetrical multiprocessing and have multiple "personalities," or the look and feel of several environments including OS/2, Windows, DOS and Unix. The product is expected to be available by mid-1994.

WorkPlace OS figures to be the first line of defense against Windows NT and is also targeted at multiple hardware platforms. Windows NT has gotten off to a fast start, shipping a little more than 200,000 copies in the first 60 days.

If large corporate accounts continue to order products at this pace, it is expected to place enormous pressure to succeed on WorkPlace OS.

Databases

Kodak organizes photo CDs with image manager software

By Michael Vizard

Eastman Kodak Co. in Rochester, N.Y., recently began delivering its Photo CD image manager software for Windows, which gives users a database that can reference more than 30,000 files containing 35mm slide film.

Called Kodak Shoebox, the $345 database is intended to give users an on-line method for accessing slides stored in any type of format on a CD drive. Shoebox is intended for slides that previously had to be archived manually in file cabinets.

Once stored, these images can be incorporated into other applications and documents. For example, Living Rooms Associates, Inc. in Parsippany, N.J., is building a plant catalog on top of Kodak Shoebox.

This catalog will make use of the database's ability to attach 30,000 characters of text to each image stored, which means that images can be easily reused and tailored across multiple catalogs.

"We've got about 200 images in our initial catalog to which you can attach descriptions of the plants, height, color and care instructions," said Tom Creeden, who along with Joe Sialone founded Living Rooms Associates.

Based on a Btrieve database architecture, Kodak Shoebox includes an indexing tool that allows a user to search for specific types of images across the database. For example, a user can specify that he would like to see all photos with children.

Multiple uses

Given its capabilities, Creeden said he expects to see Kodak Shoebox adopted across a wide range of industries.

"You can use this catalog on everything from wine to medical supplies. As a teaching reference tool it's unbelievable," Creeden said.

In addition, Kodak Shoebox can be linked with other applications, such as presentation graphics and word processing packages, through the Clipboard facility in Windows. In the coming year, Kodak also plans to add support for Version 2.0 of the Object Linking and Embedding interface, which will allow users to call images from Kodak Shoebox without having to exit their programs.

As part of a special introductory offer, Kodak Shoebox can be purchased for $99 through the end of the year.

Briefs

Products bundle up

WordPerfect Corp. and IBM's Personal Software Products group have agreed to a product bundle for European markets that combines WordPerfect 5.2 for OS/2 with OS/2 2.1. The three-month agreement begins this month. The deal is the first phase of an agreement that includes cooperation among sales forces of each company's European offices. Pricing on the two-product bundle will vary in each country, but it will be similar to the unbundled WordPerfect for OS/2.

Verity chooses OS/2

Verity, Inc. recently announced it has begun shipping its document retrieval software for OS/2 2.1. Earlier, Verity shipped its software on Sun Microsystems, Inc.'s Solaris 2.2 operating system.

petition.

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[redacted]

Software

Software Illustrated has announced MapLand for Microsoft Corp.'s Excel for Windows, spreadsheet mapping software.

According to the Pleasanton, Calif., company, users are able to chart data in a map inside a spreadsheet.

Users can also create pie maps, shaded maps, column maps and pin maps of their data. Spreadsheet Mapping allows users to link data to maps.

Fourteeo geographic workbooks with major cities and couotry boundaries are provided.

MapLand for Excel for Windows costs $99.95.

▶ *Software Illustrated*
(510) 463-9898

Age Logic, Inc. has introduced XoftWare/32 Version 3.0, part of the XoftWare/32 line of 32-bit PC X Window System server software. Version 3.0 is available for Windows and OS/2.

According to the San Diego company, XoftWare/32 for Wiodows is optimized for the Windows operating platform and allows users to concurrently access and display Windows, DOS and network-based Unix applications on the same PC. Version 3.0 of XoftWare/32 for OS/2 enables PC users to simultaneonsly access and display network-based Unix applications with Windows, OS/2 and DOS applications.

Highlights inclnde Network File Manager (NFM) local printing capabilities, NFM graphical file browser, a concurrent Windows Manager Mode and 32-socket support.

The Windows and OS/2 versions of XoftWare each cost $395.

▶ *Age Logic*
(619) 455-8600

WordPerfect Corp. has introduced 20 Language Modules for WordPerfect 6.0 for DOS.

According to the Orem, Utah, company, Language Modules allow users to unite international versions of a hyphenation module, spell checker, thesaurus and/or keyboard with WordPerfect.

Features include a WordPerfect Coach feature, full WYSIWYG editing, built-in spreadsheet functionality, scalable foot support, dialog boxes, hutton bars, drag-and-drop text and graphics and fax, sound and electronic-mail capabilities.

The DOS Language Modules cost $99.

▶ *WordPerfect*
(801) 225-5000

Comshare, Inc. has announced the Arthur Allocation System, a platform-indepeodeot client/server retail application.

According to the Wilmington, Del., firm, the Arthur Allocation System deliv-ers high-value decision-support capabilities to allocation teams in medium to iarge-size retail organizations.

The product works with the company's Arthur Performance Tracking, Arthur Merchandising Planning and retail processing systems.

The Arthur Allocation System is platform-independent and can perform in multiple-server environments.

System requirements include a 33-MHz 486-based PC or above, 4M bytes of RAM, a Video Graphics Array monitor and a mouse.

Pricing is expected to begin at $50,000 for a 10-user license.

▶ *Comshare*
(302) 479-5454

Hardware

Opus Systems, Inc. has announced Incognito Unix applicat ion engine, a software and hardware package that iets Windows, DOS and OS/2 users run the same applications that ruo on Sun Microsystems, Inc.'s SPARCstations.

According to the Santa Clara, Calif., company, the applicatioo engine lets PC users cootinue to work in a familiar PC environment, share informatioo between their Unix and PC applications and receive transparent access to a variety of 32-bit Unix applications.

Users need to install a PC/AT add-in board, a hard disk drive and PC software.

The base configuration for the Incognito applicatioo eogine, incinding the InBoard-Engine/MS1, Incognito/Quick-Start and Incognito/Share, costs $995.

▶ *Opus Systems*
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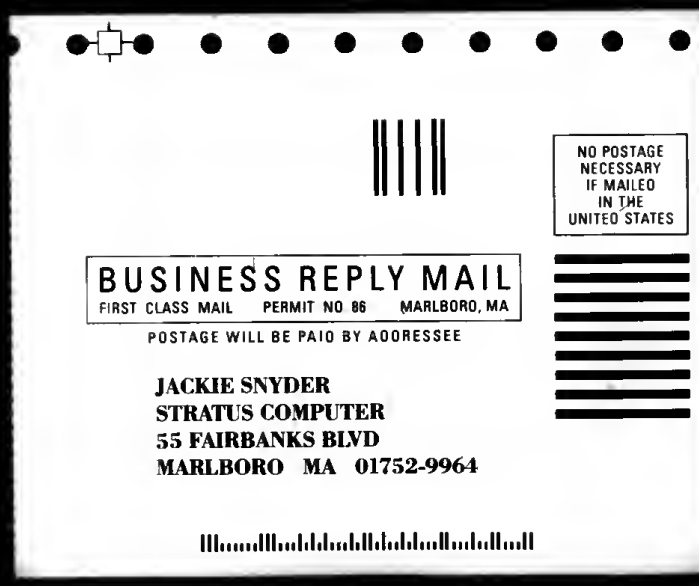

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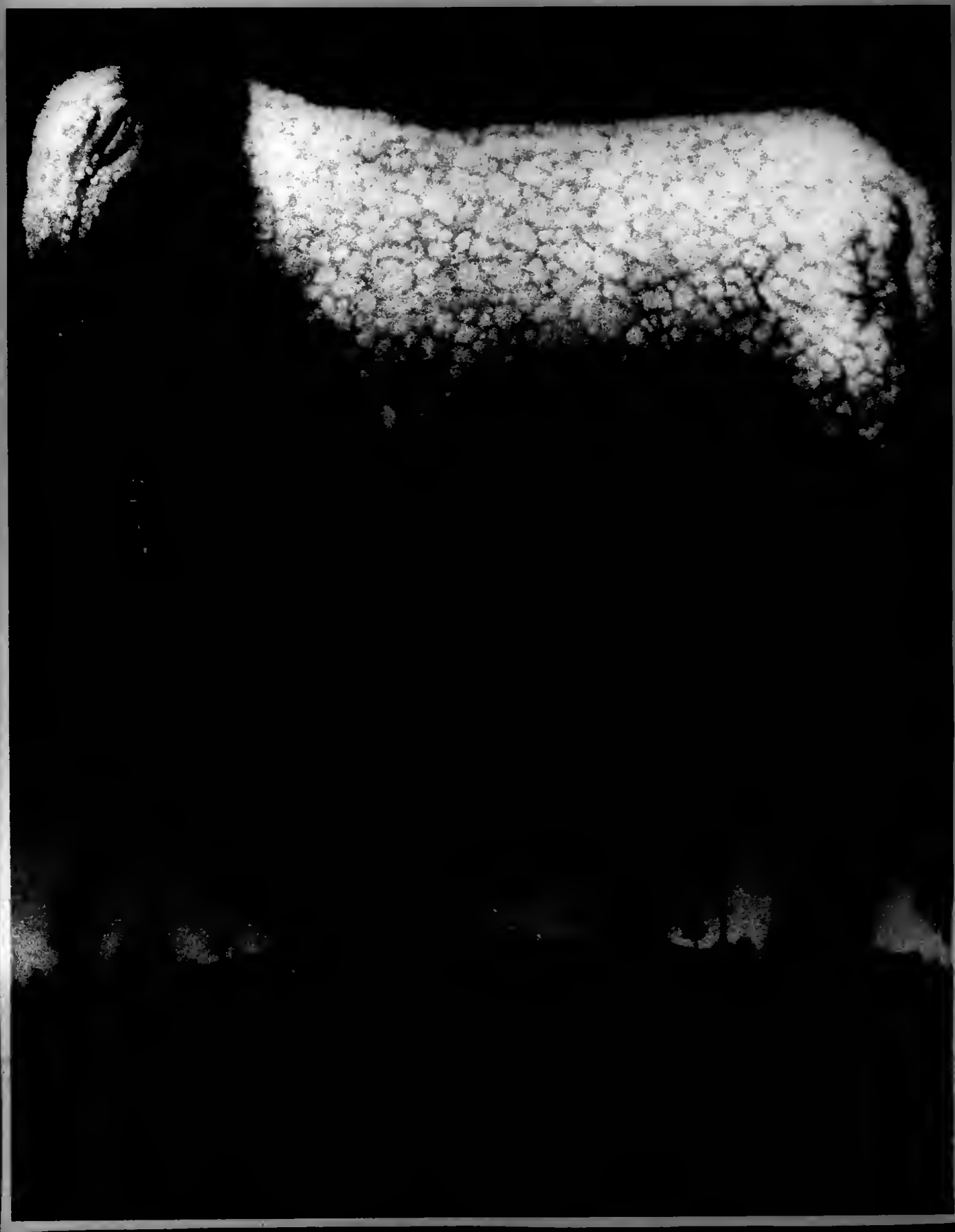

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Elisabeth Horwitt

Why go with peer-to-peer?

You know that old story about the guy who boasted he could make delicious stone soup? His friends said, "Right!" So he said, "Watch!" He put these big stones in a pot of water and then added a few seasonings, a few carrots, a chunk or two of beef, a potato and an onion, and behold: stone soup!

Microsoft and Novell have been making stone soup lately with the latest releases of their so-called peer-to-peer networking products.

The idea behind peer-to-peer networking was to provide a low-cost way for a few users to share files and printers without the trouble and expense of setting up a full client/server system, along with network management, security and central administration. In a peer-to-peer system, each PC is both a client and a server, with users calling up whatever files or peripherals are designated as sharable on other PCs.

Such systems apparently fill a need among small businesses. Artisoft has done quite well selling its LANtastic peer-to-peer network to such firms. But Artisoft decided it wanted to sell LANtastic to corporations, too. Novell apparently had the same idea with NetWare Lite, as did Microsoft with Windows for Workgroups.

Cool to the idea

But corporate network administrators reacted with strong aversion to the idea of letting their users share resources without the security, centralized administration and network management provided in a server environment. And corporations said peer-to-peer users should also be able to get at corporate files residing on NetWare servers. So the current versions of Windows for Workgroups, LANtastic and NetWare Lite (renamed Personal NetWare) have all of the above capabilities.

So if your users insist on all of the capabilities of a client/server system, why bother with peer-to-peer at all? If you're adding onions, beef and potatoes anyway, why put in the rocks?

Managers interviewed at some corporate sites recently said they were considering putting in a peer-to-peer system as a way for workgroups to share a few files on local disks.

But of course, the real strategic significance of the Microsoft and Novell peer products is that they are being bundled, basically free, with Microsoft's Windows 3.11 and Novell's DOS 7.0.

This seems to be the most useful way to deploy peer networking — as an inexpensive way to make strategic desktop products network-ready and as one more arena in which Microsoft and Novell one-upmanship can flourish.

Horwitt is a *Computerworld* senior editor, networking.

Qantas takes off with Notes

By Michael Vizard

Qantas Airways has become one of the first players in the highly competitive airline industry to adopt Notes from Lotus Development Corp. as a communications infrastructure for coordinating the activities of multiple departments.

As part of an overall redesign of its business process, Qantas has deployed Notes as a tool that will allow 13 departments to more effectively collaborate on the creation of airline schedules.

Called the Schedule Planning Network, or Planet, the Qantas implementation of Notes is built around a client/server model that seeks to augment the airline's existing information systems resources.

Qantas is using Notes *to coordinate the activities of its different departments as part of a re-engineering effort*

Inefficient processes

Initially, the airline plans to use Notes in place of a central administrative resource that was charged with manually coordinating input from the various departments affected by airline schedules.

However, that process frequently proved inefficient because it required central administrators to verbally communicate with each department.

"We found ourselves changing schedules too much or too late. We needed to get information for the departments earlier and build in an ability to be flexible," said Richard Head, a member of the chief information office at Qantas in Sydney, Australia.

Deployed primarily as an interactive discussion database that runs on top of the airline's proprietary QMail system, the Notes environment has been enhanced with an application that Head calls the Balanced Scorecard. Using this application alongside Notes, users can evaluate proposed schedule changes against a set of business rules that contain optimum scenarios created by the airline's experts.

"The nice thing about Notes is now we have an audit trail of discussion that allows us to see where we might need to make changes," Head said.

Once the optimum schedule is created, the actual schedule is manually keyed into the Airline Trips, Loads and Schedules system running on an IBM IMS database deployed on a mainframe.

Immediate goal

Head said his next goal is to acquire schedule development tools that will create applications that span both the IMS and the Notes environment.

Thus far, Head estimated that Qantas has spent about $300,000 to build a Planet system that currently supports about 50 users. This does not include costs associated with a review of the company's overall business processes, which took place last spring.

"We had to examine the whole process because most of the areas of the company are touched by the scheduling system. It drives the cost and revenue of the business," Head said.

In the long term, Head said he expects to see other departments at Qantas adopt Notes. However, undertaking such an effort without reviewing the business processes in those departments would probably prove futile, he added.

"Notes is a great tool provided you re-engineer first. It's the glue for knitting everything together to create a whole new way of working," Head said.

Chase seeks technology advantage

By Thomas Hoffman

The Chase Manhattan Bank NA in New York is in the early stages of developing an $85 million distributed trading floor for 456 traders, and it is counting on Unix workstations and videoconferencing to improve access to market data and speed decision-making.

While the Sun Microsystems Computer Corp.-based Unix trading environment is hardly the first of its kind, industry pundits said Chase's plan to implement desktop-to-desktop videoconferencing over an Asynchronous Transfer Mode (ATM) backbone network is certainly leading-edge.

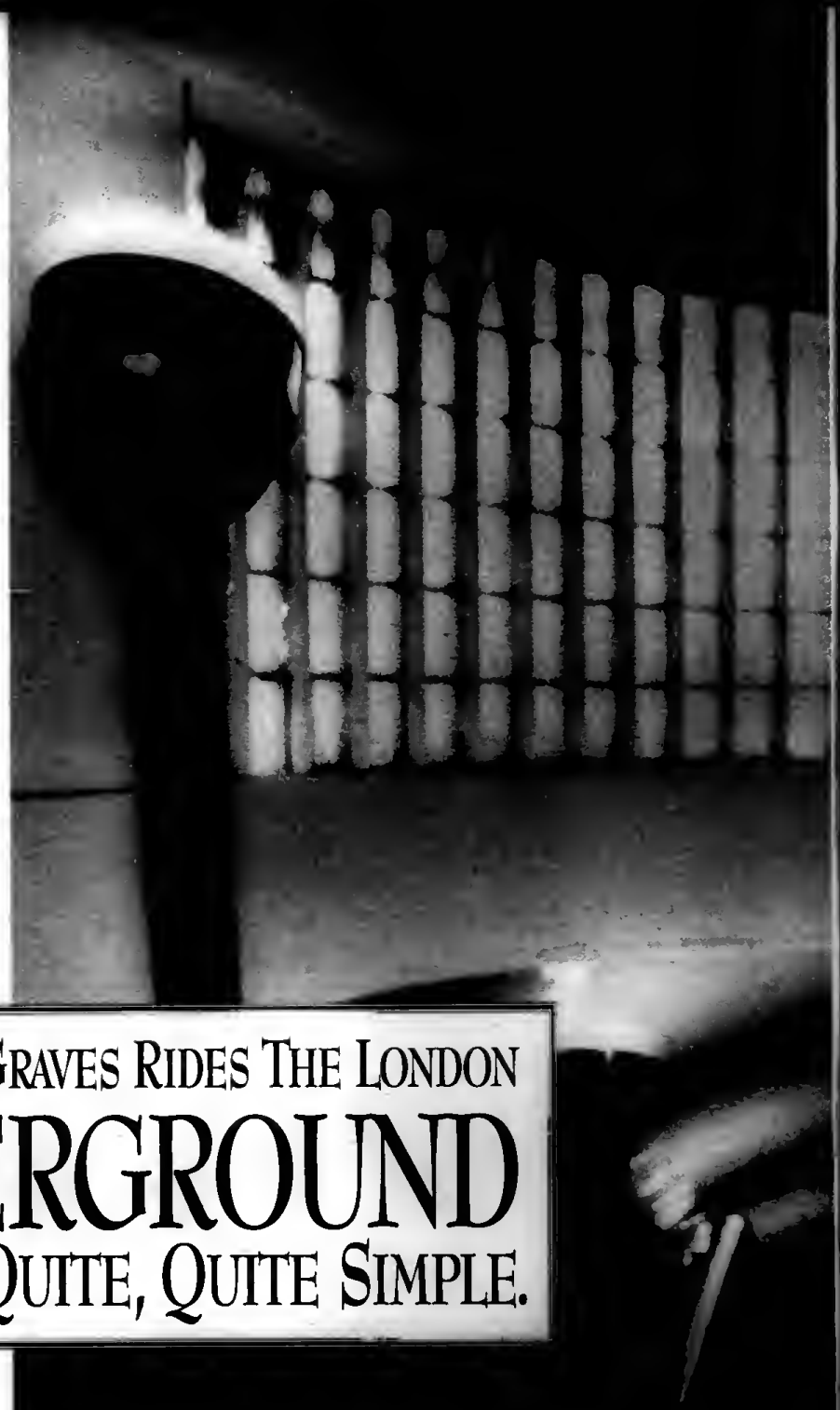
"This is the first commercial example [of trading-room ATM deployment] that I've heard of," said James Moore, president of Mentis Corp., a Salisbury, Md., banking technology market research firm.

Citibank NA has also been reviewing ATM for its trading rooms for the past year and is considering the fast-packet technology for its trading floors, including its recently developed fiber-equipped trading room in Tokyo, according to Debra Williams, a former Citibank technologist who recently became an analyst at The Tower Group, a Wellesley, Mass., research and consulting firm that focuses on banking applications.

Chase Manhattan Bank *will be among the first to employ ATM technology in trading-room environments*

Both Moore and Williams said ATM's high-

Chase, *page 54*



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Corel wastes no time in offering Ventura upgrade

By Michael Vizard

Less than a month after acquiring the Ventura desktop publishing package from Xerox Corp., Corel Corp. late last month announced Version 4.2.

With Version 4.2, Corel has combined the Ventura Publisher and Ventura Database Publisher packages into a single entity called Corel Venture. It also added font, photo and clip-art libraries.

Priced at $249, the package also now includes faster font-loading capabilities and support for Acrobat fonts from Adobe Systems, inc. in Mountain View, Calif.

However, while Ventura users generally welcomed Corel's acquisition of the product, which had foundered under Xerox, users will not see any substantial improvements to the core Ventura technology line until Corel unveils Release 5.0 sometime next year.

"Ventura users are starving for an upgrade. They haven't seen any substantial improvements made since Version 2.0. People are just going to have be patient through another release of the software. But I think most users are willing to cut Corel some slack at least until they see Version 5.0," said Rick Altman, a Ventura user and an independent editor and publisher in Cupertino, Calif.

"The Corel acquisition couldn't help but do good. Ventura had been sort of floating around in never-never land under Xerox," added Frank Gilbane, president of Publishing Technology Management, Inc., a consulting firm in Arlington, Mass.

Competition from within

Al the same time, the Ventura publishing package has been facing stiff competition from Corel's QuarkXPress desktop publishing package and the rival PageMaker offering from Aldus Corp. in addition, companies such as Frame Technology Corp. have been merging word processing technology with desktop publishing packages, and word processors have added more sophisticated features.

Ironically, Altman noted that with Corel's acquisition of Ventura, the company has now gone full circle. "Not many people remember that Corel got its start as a provider of add-on products for Ventura," Altman said.

But whether Corel will be able to breathe new life into the Ventura product set remains to be seen.

And the company has yet to divulge any product strategy for integrating Ventura with QuarkXPress.

"No matter whatever reputation it has lost, Ventura is still one of the most powerful programs ever delivered for desktop publishing. It may not be as flexible as some, but its strength is in the structure it provides," Altman said.

Corel's drive into the desktop publishing market is being driven by changing market dynamics.

"Since most graphics packages today have the ability to work with text, most people aren't distinguishing between graphics packages and desktop publishing packages anymore," said Michael Cowpland, president of Corel.

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SMC seeks Token Ring coup

Vendor brings prices closer to those of Ethernet

By Stephen P. Klett Jr.

Standard Microsystems Corp. (SMC) last week kicked off a Token Ring strategy aimed at chiseling away IBM's dominance in the market and bringing Token Ring prices more in line with Ethernet.

While Token Ring is faster than Ethernet — the technologies run at 16M and 10M bit/sec., respectively — the extra speed comes at a significantly higher price. For example, Ethernet adapter cards typically sell for between $100 and $200 while Token Ring cards start at roughly $500. For users facing shrinking information systems budgets, this price disparity often makes Ethernet the most viable network topology.

To make Token Ring more palatable, SMC cut $100 off the price of its 16M bit/sec. Token Ring adapters, which now retail for $299, and slashed prices of the company's Multistation Access Units (MAU) by 30%. For example, SMC's 12-port 4000 Elite Series MAU now sells for $1,199 or roughly $75 per port.

"These price cuts are very aggressive," said Chip Pettirossi, an analyst at International Data Corp. in Framingham, Mass. "They have got to be one of the lowest price points."

SMC is also focusing on making Token Ring easier to use. For example, SMC ported EzStart, an autoconfiguration and diagnostic program for its Ethernet adapter product line, to its Token Ring line. In addition, every card will include SMC's Simple Network Management Protocol (SNMP) agent, PC Agent/SNMP, which provides network managers with inventory management, remote configuration checking and network troubleshooting capabilities.

"Our goal is to make Token Ring technology more accessible and affordable to the end user," said Lance Murrah, vice president of marketing at SMC's System Products Division in Hauppauge, N.Y. "We want to be the No. 2 player behind IBM and see no reason why we can't be with this program."

While SMC is well-known in the Ethernet world, it has only been in the Token Ring market for 18 months. Murrah said SMC's share of the market stands at roughly 4%, and the company's goal is to bump that up to 10% within a year, which would make it a very distant second to IBM.

Analysts said they were pessimistic about SMC's chances of achieving this goal. "Seeing as they're not even among the Top 7 players right now, that would be a lot of jumping they'd have to do, and there are many hurdles to clear," said Stan Schatt, an analyst at market researcher Computer Intelligence/InfoCorp. in Santa Clara, Calif.

Its "biggest challenge is overcoming the compatibility issue — convincing people they are not going to get fired for buying SMC cards," Schatt said. "But these prices will get their foot in the door."

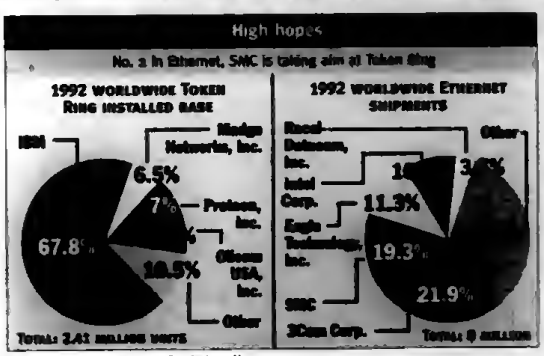
Initial impression

Laura Deets, LAN manager at Aon Specialty Group, a predominantly IBM customer shop in Chicago, said she was impressed with SMC's price points and was interested in evaluating the cards.

However, Deets said she would probably not go with SMC's MAU. "When it comes to the [network interface card], I'm open to other vendors," Deets said. "However, on the MAU level, while I'm sure there are other products that are compatible, IBM is probably a little more reliable."

To help overcome this mindset and ensure that its products are compatible with IBM networks, SMC has licensed IBM's LAN Support Program, which provides the NetBIOS and 802.2 Logical Link Control code for Token Ring networks, Murrah said.

In addition, Murrah said the company will provide free IBM connectivity consulting, and its products will carry a lifetime warranty and 30-day money-back guarantee.



Source: International Data Corp., Framingham, Mass.

Briefs

NCR announces free offer

NCR Corp. announced that all buyers of its NCR 3400 and NCR 3500 servers with Unix client/server and network file server environments will receive a specially packaged, five-user English version of NCR's StarGroup LAN Manager software product for free when their new systems are delivered. Shipments of this package will begin with the release of Unix System V Release 4 Version 2.02 this month.

Fujitsu unveils drives

Fujitsu Computer Products of America, Inc. has announced four disk-drive families that include drives incorporating magneto-resistive (MR) recording head technology. Pioneered by IBM, MR technology allows more data to be recorded on a single drive through the use of separate read/write heads. Magneto-optical drives typically store 200M bits of data per square inch. Fujitsu said its MR drives, due to ship in the first quarter of next year, will be able to store 300M bits of data per square inch and will eventually exceed 1G bit of data per square inch. Volume pricing for a 3.1G-byte MR drive is estimated at $1,595.

LAN Manager upgrade ready

Microsoft Corp. announced immediate availability of an upgrade for LAN Manager Version 2.0C and higher to Windows NT Advanced Server. The product is said to smooth the transition with automated tools and on-line Help. Pricing is $595.

NetWare release

Novell, Inc. has begun shipping its NetWare for SAA Version 1.3B with runtime versions of NetWare 4.01 and 3.12. NetWare for SAA is a gateway that lets NetWare clients access IBM hosts.

Open/Image put to use

Wang Laboratories, Inc.'s Open/Image imaging software is being used in new manufacturing applications released by Effective Management Systems, Inc. in Milwaukee and Earnest & Associates in Glen Burnie, Md.

Digital and US West deal

Digital Equipment Corp. was chosen by US West Communications, Inc. to supply Alpha AXP-based video server technology for use in a broadband communications trial that US West is planning for next year in Omaha, pending approval by the Federal Communications Commission.

Digital, which is seeking similar deals with other telecommunications companies, said its systems will support video-on-demand and other interactive programming for the US West trial. The interactive capabilities are scheduled to be provided by The 3DO Co.

C++
Now the World's Leading Mainframe C Compiler Features Some Significant Pluses

Introducing the SAS/C C++ Development System from SAS Institute. Another first from the first name in C programming tools for the IBM mainframe environment.

A Plus for Productivity

C++ is an object-oriented superset of the C programming language that makes program development, use, and maintenance easier and more efficient. Now with the SAS/C C++ Development System, you can open the door to object-oriented programming on your IBM mainframes under MVS (batch and TSO) and VM/CMS while preserving your existing investment in C applications.

The SAS/C C++ Development System is fully compatible with the AT&T 3.0 release of the C++ language with the exception of template support. It implements the familiar constructs of the C++ programming language—including in-line functions, operator and function overloading, references, and free store management—providing a robust and productive applications development environment.

The enhanced SAS/C Full Screen Debugger, available with the SAS/C compiler, also supports C++, allowing you to debug C++ as well as mixed C and C++ applications.

A Plus for Portability

The SAS/C C++ Development System is an indispensable tool for migrating existing C++ applications developed in other environments. Applications built on UNIX workstations and PCs can be ported to the mainframe with minimal effort. As a result, your workstation becomes an effective platform for mainframe applications development.

Find Out More In A Free Report

To learn more about the pluses of C++ programming with the SAS/C C++ Development System, simply call or fax us today.

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Comshare strengthens Excel link

By Michael Vizard

Comshare, Inc. in Ann Arbor, Mich., this week will launch Version 2.0 of its Commander Financial Data Control (FDC) software, which will add Windows support and tighter integration with Microsoft Corp.'s Excel spreadsheet.

Based on the same multidimensional database used in Comshare's Commander Prism executive information system, FDC is a consolidation and reporting tool tailored to financial managers who need to analyze data stored in any Btrieve database. FDC will be announced at the Comshare user's conference in Dallas.

Using query tools that Comshare has added into Excel or Lotus Development Corp.'s 1-2-3, these managers can download data from a Btrieve database into the Comshare database, where it can be analyzed by client systems using a variety of drill-down tools provided in FDC.

In the background

To facilitate gathering that information, FDC can be run as a background task until the data is downloaded from the Btrieve database.

Among the companies adopting FDC 2.0 is truck manufacturer Freightliner Corp. in Portland, Ore., which is currently in the process of replacing a custom financial reporting application that runs on an IBM mainframe.

Using query tools that Comshare has added to Excel and 1-2-3, financial managers can download data from Btrieve to a Comshare database, where client systems analyze it using a variety of drill-down tools provided in FDC.

As part of that effort, Freightliner will deploy FDC alongside custom applications it is building using PowerBuilder tools from Powersoft Corp. and Microsoft's Access relational database, according to information systems analyst David Sinner.

However, while Freightliner will work with the current version of FDC, Comshare said it plans to deploy FDC running in conjunction with the SQL Server relational database from Microsoft, as opposed to the Btrieve databases currently supported by Comshare.

According to Comshare officials, the company will accomplish this initially by supporting Microsoft's Open Database Connectivity interface, which will be followed by plans to more tightly integrate the Comshare multidimensional database with SQL databases.

An FDC site license is priced at $120,000.

Chase

CONTINUED FROM PAGE 49

bandwidth capabilities will likely catch on in trading-floor environments in the next few years as the technology matures and standards are enacted. "For the most part, trading floors are pretty much running at capacity in terms of their data feeds," Williams said.

While visions of fast-packet switching dance in the heads of Chase technologists, quick and easy access to market data is the bottom line for its traders, who last quarter handled a bank record $186 million in trading volume.

"We're not interested in how the feeds are made or what the equipment consists of as long as the information we need gets to us," said Kathylynn O'Donnell Galbraith, a Chase executive vice president responsible for the bank's global capital markets activities.

Global village

In an attempt to address the increasing global nature of the capital markets it invests in, Chase last summer consolidated its international and U.S. capital markets operations into a single reporting structure.

To meet the global information technology requirements of its investment managers, Chase needed faster, more flexible graphical user interface (GUI) and analytics tools that would simplify the value of investments to investors, according to Galbraith.

"Our investment managers have to be able to interface with our investors, and they can't do that without state-of-the-art technology on the desktop to break down and simplify the relative value of the investment," she said.

To meet those and other trading-floor requirements, the bank is developing an Open Software Foundation (OSF) Motif-based graphical front-end package called Chase Advanced Trader Systems (CATS). CATS was designed to provide Chase traders with access to several Sybase, Inc.-based trading databases — including those used to house data for capital markets, commodities, derivatives, foreign exchange and treasury — while maintaining a consistent look and feel among different environments, according to William F. Schimoler, a Chase vice president.

The goals

Chase Manhattan has identified four key strategic business requirements for its forthcoming distributed trading environment to address:

- Identify trading opportunities.
- Capture transaction-specific information.
- Help the bank manage trading positions in fluctuating markets.
- Understand the exposure and opportunities the new environment creates.

CATS is slated for full production in Chase's foreign exchange trading within six months, Schimoler said. CATS implementation in other trading areas will follow shortly thereafter.

CATS "is more integrated than what exists today and will provide us with more and faster analytical tools," Galbraith said.

For example, only 115 of Chase's 456 New York traders are currently equipped with Sun workstations. Furthermore, Galbraith said, most of the market analysis handled by Chase traders today is conducted — after the trades are made — on VT100-type terminals linked to a Digital Equipment Corp. VAX computer.

In contrast, the CATS system, she said, will enable the bank's brokers to analyze its trades on the fly with additional Sun SPARCstations running Tekenkron Software Systems, Inc. market data distribution software under Motif GUIs.

The Sun workstations being installed on the trading floors here will be linked to one another over TCP/IP LANs.

Chase's trading floors in New York and London are connected to the bank's back-end IBM ES/9000 mainframe in Bournemouth, England, via T1 connections, according to Gordon Davies, a Chase vice president.

Decision time

Chase plans to decide on an ATM hardware vendor in the next two months but will likely wait until the technology matures and standards arrive before deploying the backbone devices in 1995, according to Schimoler. Between the time the trading floor goes into full production by November 1994 and that 1995 date, an Ethernet-based Fiber Distributed Data Interface backbone will support data distribution.

Chase is also planning to equip its New York and London traders with desktop-to-desktop videoconferencing capabilities. To date, only a handful of brokerages have addressed videoconferencing on their trading floors, including Morgan Stanley & Co., Moore said.

Chase expects to choose a videoconferencing software vendor by early next year, Schimoler said. In the meantime, the bank is testing software from Insoft Communique. Moore said desktop videoconferencing systems typically cost about $15,000.

Module facilitates storage for word processing files

By Michael Vizard

BRS Software Products, a division of InfoPro Technologies, Inc. in McLean, Va., last week added support for a word processing document conversion module to its text-retrieval database.

Offered under a reseller pact with Keyword Office Technologies Ltd. in Calgary, Alberta, the module is intended to allow word processing users to access any document stored on a BRS/Search database regardless of the document's original format.

In addition, the BRS/Search database can be linked to SQL databases.

The module supports more than 20 word processing applications running on either DOS, Windows, Macintosh, Unix or OpenVMS platforms. The BRS/Search engine runs on Unix or Novell, Inc. NetWare servers.

Pricing starts at $750 for a stand-alone version of BRS/Search.

[redacted]

Epoch Systems, Inc. has announced Epoch Enterprise Backup, a client/server backup/restore product that accommodates PC-based platforms, relational databases and Unix file systems across the enterprise.

Epoch Enterprise Backup can be used for PC LANs, stand-alone or networked Unix workstations and servers and mainframe storage subsystems. According to the Westboro, Mass., company, support for PC LAN client/server environments with Novell, Inc. NetWare clients is provided.

Features include intelligent schedule management, comprehensive reporting, heterogeneous client support and database backup support.

Epoch Enterprise Backup pricing ranges from $2,200 for five nodes up to $50,000 for 500 nodes.

▶*Epoch Systems*
(508) 836-4300

XDB Systems has introduced a distributed relational database architecture (DRDA) server for the desktop.

According to the Laurel, Md., company, the XDB-DRDA Server enables a DB2 for MVS, DB2/VM (SQL/DS) or SQL/400 application to initiate a dialogue to access data stored on an XDB-Server database running on a desktop, LAN or "mobile computer" via the DRDA protocol.

The process of importing and exporting data to and from the LAN is controlled by features that include security, audit, job scheduling and report distribution.

Third-party proprietary middleware is not needed, and application developers can use standard SQL requests.

The XDB-DRDA Server requires 200K bytes of RAM on a 386- or 486-based microcomputer.

Pricing is $8,500 for one to 10 users, $12,000 for 11 to 20 users.

▶*XDB Systems*
(301) 317-6800

PlanView, Inc. has introduced Version 2.0 of PlanView, Windows software for client/server work management solutions.

According to the Austin, Texas, company, Version 2.0 builds on the functionality of previous PlanView products and adds the ability for various classes of users to interact in the database, including work sponsors or requestors, functional, project or executive managers and time reporting staff.

Prices range from $1,800 to $4,200 per concurrent user.

▶*PlanView*
(512) 346-8600

SunSolutions has introduced ShowMe 2.0, a desktop videoconferencing product that lets workstation users collaborate interactively with video, audio and screen-sharing tools in real time.

According to the Mountain View, Calif., company, ShowMe 2.0 lets users display, discuss, annotate or edit images, documents and videos, as well as share applications via a graphical user interface.

Version 2.0 consists of ShowMe Audio, ShowMe Video, ShowMe SharedApp and ShowMe Whiteboard.

Prices start at $3,270.

▶*SunSolutions*
(415) 336-4567

ICL has announced several additional features for its DRS 6000 300 series of Unix servers.

According to the Irvine, Calif., company, these enhancements include a new technology enabling the maximum memory limit to be increased to 512M bytes and a 40-MHz SuperSPARC processor module that provides power upgrades.

The 300 series includes two I/O combination adapters and a dual SCSI-2 adapter.

The products come preinstalled in DRS/NX Version 7.0, which is ICL's implementation of Unix System Laboratories, Inc.'s Unix System V Release 4.2.

Prices range from $9,900 to $30,650.

▶*ICL*
(714) 855-5500

MTI has announced StingRay II, a storage server technology designed to meet the I/O demands of CPUs such as Digital Equipment Corp.'s Alpha.

According to the Anaheim, Calif., company, the StingRay II offers an advanced algorithm cache that supports up to 1.8G bytes of high-speed dynamic RAM. The results are said to be performance-rated at 3,600 I/Os per second and a bandwidth of 8M byte/sec.

StingRay II offers 160 MIPS of processing power for ultrahigh speed and performance. Other features are load balancing with the parallel processor.

Pricing begins at $25,000.

▶*MTI*
(714) 970-0300

NCR Corp. has announced the NCR 7450 retail workstation, a point-of-sale system.

The NCR 7450 features NCR's DynaKey technology, a combined display and keyboard that assists users through a transaction.

The workstation provides a key lock control for security and printer support. The NCR 7450 is an open systems-based workstation that can run Windows 3.1, MS-DOS 6.0 or OS/2 2.1.

According to the Dayton, Ohio, company, the product complies with the U.S. Environmental Protection Agency's Energy Star program.

The NCR 7450 is priced starting at $2,500.

▶*NCR*
(513) 445-5000

The RBS Group, Inc. has introduced Softrax integrated business software.

According to the Braintree, Mass., company, the product is Unix-based and hardware-independent. It can track installations, support calls, licenses, prospects and inventory and process orders.

Softrax is priced at $1,000 to $1,500 per user.

▶*The RBS Group*
(617) 848-3927

Product shorts

Pixelink Corp. has introduced OS/2-compatible high-resolution displays, options for its 120XDS Xcelerated document imaging systems running 17-, 20- and 21-in. color monitors. The systems can display 256 colors at resolutions of up to 120 dot/in. The 120XDS runs with Windows and Unix/X Window System-based host systems. Cost: $4,095. Pixelink, Hudson, Mass. (508) 562-4803. . . .

The Mark Williams Co. has introduced Release 4.2 of the Coherent operating system. Features include the ability to run more than 50 third-party software packages, a Unix System V-style print spooler and support for SCSI and floppy tape drives. Cost: $99.95 for one to four users. Mark Williams, Northbrook, Ill. (708) 291-6700.

If only it were this simple.

Linking UNIX systems to IBM networks can be a challenge. You can't just connect the dots. There are many issues to consider:

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- Do you process interactively (3270), in batch (RJE), or both?
- Are your UNIX systems linked to LANs? Are there SNA gateways for these LANs?
- Do you use program interfaces such as HLLAPI, APPC/LU6.2, and LUA/LU0?
- How do you manage your network? How will you distribute programs, files, and data to your remote UNIX systems?
- How will your network evolve in the future?

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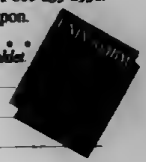

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TECHNOLOGY

WAN gives focus to World Vision

Connectivity software helps channel resources to relief

By Joanie M. Wexler

Sometimes a simple technology can translate into benefits that transcend plus signs on the bottom line of a corporate financial statement.

In the case of World Vision Canada, a partnership within World Vision International, a global nonprofit relief organization, communications software linking remote PC users to a central database and LAN-like services on an IBM AS/400 is ultimately helping channel more resources into food, training and care for needy Third World countries.

One way Package/PC software from Telepartner International in Farmington, Conn., is helping around the world is by beefing up the ability of Toronto-based World Vision Canada fundraisers to quickly extract and manipulate key information from a host database to encourage donations, said Michael Boivin, technical analyst.

It is also streamlining operations by letting remote users become IBM OfficeVision participants. This eliminates much faxing and other manual processes and transfers funds out of the operations area and into relief aid, World Vision said.

Without the package, which the organization installed about six months ago in its 30 small offices throughout Canada, fundraising users could only perform terminal emulation and were unable to access LAN services, such as remote printing, that are available with the IBM PC Support software that comes bundled with the AS/400 operating system.

Package/PC, however, extends the functionality of PC Support to asynchronous dial-in users over X.25 packet-switched lines and precludes the need for terminal emulation hardware, Boivin said.

World Vision Canada President Don Scott *holds Ali Mohammed, 4, at a hospital in Mogadishu, Somalia*

"Terminals were just too expensive, because you have to buy a terminal controller that costs

World Vision, *page 64*

Distributed systems

Managing costs proves difficult

By Thomas Hoffman

Many organizations have drawn quantifiable benefits from moving data and applications into the hands of end users via geographically distributed systems, such as improvements in customer service response times.

But the ability to gauge the costs of ownership and support for these widely dispersed systems are often elusive and difficult to manage, according to a recent study compiled by Business Research Group (BRG), a market research firm in Newton, Mass.

For example, according to the BRG white paper "The Cost of Geographically Distributed Computing," more than 70% of information systems executives surveyed at 180 U.S. organizations said remote network management has become a critical concern for their companies.

"That's a topic near and dear to my heart right now," said Donna Maria Krasner, a manager of technical services at Cheesebrough-Pond's USA Co. in Trumbull, Conn.

The company is involved in several networking projects right now, including the establishment of a frame-relay connection between its Trumbull data center and Jefferson City, Mo., manufacturing plant. The connection is planned for completion by the end of this month.

Training issues

A key element in the cost of computing is training. Users told BRG that they are spending between $8,718 and $15,470, depending on platform, over the course of three years.

A closer look

Kevin O'Neill, vice president of research and consulting at BRG, said the firm used the survey to look more closely at some of the hidden costs of geographically distributed computing, such as ongoing training.

"What we found is that you really have to take a look at the costs of maintaining these environments throughout their life cy-

Managing costs, *page 60*

Client/server E-mail comes in from cold

By Lynda Radosevich

ISA Corp., a systems integrator in Edmonton, Canada, last week introduced client/server electronic-mail software for the Internet and Open Systems Interconnect (OSI) networks.

Originally developed for the city of Edmonton, the software has three service components that run over both TCP/IP and OSI transport protocols: message handling services, directory services and library services.

The server software runs on major Unix platforms, and client software runs on Windows, Macintosh, DOS, OS/2, Unix and Microsoft Corp.'s Windows NT-based computers.

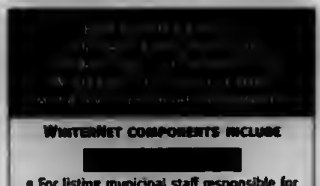
Called Enterprise Communication Services, the product is different from market-leading file-based E-mail systems such as Lotus Development Corp.'s CC:Mail and Microsoft's Mail in that the mail access protocol directly accesses the network protocols rather than writes to files on a network drive.

The result is that the workstation can operate independently and users can access messages from any geographical location as long as there is a TCP/IP or OSI network around, according to Steve Hole, director of research and development at ISA. Unlike plain internet mail, the client software has a graphical user interface and is available on non-Unix platforms, he added.

The software is at the heart of the WinterNet, an information exchange program developed by the city of Edmonton for the International Winter Cities Association. The association consists of cities that have a mean January temperature of minus five degrees Celsius.

Using WinterNet, municipal employees can share information on winter technologies, such as snow removal compounds. The city of Edmonton is rolling out WinterNet to 295 municipalities.

When Edmonton began developing the WinterNet in 1990, no commercially available software met its needs for international standards-based communications and user-friendly PC interfaces, said Joni Mines, director of systems for the city of Edmonton.



WINTERNET COMPONENTS INCLUDE

- For listing municipal staff responsible for managing municipal operations.
- For listing government departments, individuals and organizations that provide services to municipalities.
- For the exchange of information.
- For conducting discussions with various groups and organizations.
- For searching and receiving multimedia documents and reference material.
- For information on the operations, equipment and technologies of municipalities around the world.

"The problem with using CC:Mail and Microsoft's Mail is they were local, not enterprise-based, and it was difficult to connect up the networks. And the Internet is wonderful, but it is designed for fairly sophisticated users," Mines said.

So the city hired ISA to develop Enterprise Communication Services. The E-mail software uses the Interactive Mail Access Protocol, a prototype standard that is expected to reach full Internet status soon; the Simple Mail Access Protocol; and the Multipurpose Internet Mail Extension. The global directory service is based on the X.500 protocol and Internet Lightweight Directory Access Protocol (LDAP).

The city wanted to run OSI and Internet services over any network type, Hole said. Because TCP/IP networks are so much more common, the developers decided to run the OSI protocols on top of TCP/IP. To reduce the overhead, they used the LDAP, which is a stimmed-down version of OSI for TCP/IP networks, he explained.

Enterprise Communication Services is available now from ISA; however, pricing information was not available.

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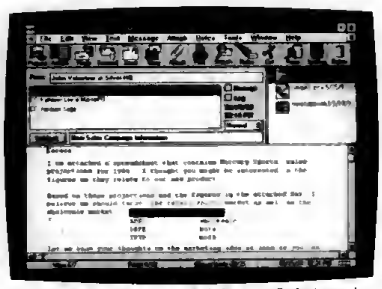

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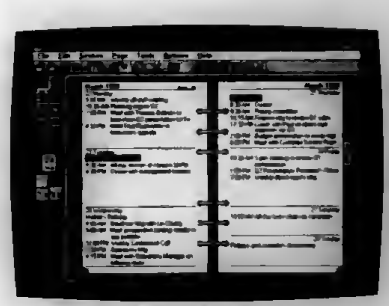

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Managing costs proves difficult

CONTINUED FROM PAGE 57

cles," O'Neill said. "Some of these environments — like early revisions of NetWare and different types of Unix — are manpower-intensive, and many organizations with multiple remote sites don't have the [people or] resources to manage them."

Finding a balance

Further complicating the issue, O'Neill said, is that most IS managers walk a fine line trying to balance the proper technical skill sets of their staffers while their departments are continuously forced to downsize. Survey participants were required to have at least seven remote sites with connections to legacy systems, O'Neill said.

One common concern among IS managers, he said, was the lack of mature software tools to help them administer and manage distributed environments, whether locally or remotely.

O'Neill said many of the nascent network management and distributed systems management tools show promise, such as IBM's NetView/6000, Hewlett-Packard Co.'s OpenView and Computer Associates International, Inc.'s CA-Unicenter. But, he said the deployment of these products to manage mission-critical applications over the next several months and the resulting user feedback will determine their mettle.

Measuring resources, costs

Gauging the costs and resources required to manage distributed systems has been a trouble spot for Patrick B. Carney, director of IS at ABB Power Generation, Inc. in North Brunswick, N.J.

"It's great to have distributed applications, but I'm not sure the management of those applications always follows. That's a hidden cost most companies aren't aware of," said Carney, whose shop runs several Novell, Inc. NetWare LANs between its offices in New Jersey and Richmond, Va. [CW, May 17].

The BRG report examined the costs of distributed systems ownership in four primary network operating system categories: NetWare, Unisys Corp.'s CTOS, IBM's LAN Server and several Unix environments.

In nearly all of the survey findings, the Unisys CTOS environment proved to be the most cost-effective.

Although Unisys commissioned the BRG study, the survey was handled objectively, according to O'Neill. "We surveyed 40 to 50 sites for each of the four environments and we gave no hint of who sponsored the study or what the other environments were," he said.

The average annual cost of supporting administration and maintenance at distributed CTOS sites came to $25,322 per site. The annual cost of supporting distributed NetWare sites averaged $37,399 per site.

Those figures came as no surprise to Dirk Faegre, a systems administrator at Concord General Mutual Insurance Co. in Concord, N.H., which runs a large CTOS network. "The reliability of this equipment is just amazing," said Faegre, who said his annual network maintenance costs run close to zero.

Staying the course

Though Faegre said he would like to see more third-party CTOS applications on the market given what's available for the DOS and Windows environments, he said his company's analyses of OS/2, Unix and Microsoft Corp.'s Windows NT operating systems fell short when compared with CTOS.

In fact, he said CTOS' resilient client/server capabilities are head and shoulders above other systems he has seen. Faegre said he would rather stick with CTOS than follow the latest client/server technology craze.

"I can see the lemmings walking over the cliff, and I don't want to be any part of it," he said.

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Patent searching gets faster

Advanced text searches could appeal to large corporations, law firms

By Lynda Radosevich

For organizations looking to research patent information, Rapid Patent in Arlington, Va., and Electronic Data Systems Corp. in Dallas will announce this week an information service said to expand and speed up patent searching.

Called the Patent Analyzer, the service is expected to appeal to large corporations and law firms. It allows advanced text searches rather than the simple keyword and Boolean searches that other electronic patent-searching services provide, according to Michael Toohey, president of Rapid Patent.

For example, users can scan a draft patent application into the Patent Analyzer, and the system searches all of the document's words against the 1.7 million patents in a database containing 20 years' worth of patent records. The system then statistically determines which patents are most related.

Ivor Kaklins, a project manager at Hamilton Consultants in Cambridge, Mass., said that a simple Boolean search misses much of the related patent information because lawyers who author patents try to avoid using standard terms in order to keep their patents safer.

"The more the true meaning is obfuscated, the more likely that the unique aspects are harder to find," Kaklins said.

Now, when companies need sophisticated patent searches, they typically hire expert patent searchers who manually search through boxes of paper-based patents stored in the U.S. Patent and Trademark Office in Arlington, Va.

"Until recently, the patent world was one of the least automated and least 20th-century information-rich industries there is," Kaklins said.

Whither the wait

Vendors such as EDS and the patent office plan to change this [CW, Nov. 1]. Patent Analyzer will cut the three-to-four week turnaround time of a manual search to 48 hours, Toohey said.

EDS is providing the processing power to complete the mammoth searches via an in-house system that has been in development since 1985. The system has 32 parallel processors and parallel processing database software, also developed in-house, according to Carl Waite, division manager at an EDS research and development division.

The Patent Analyzer is currently available for customers making requests by fax or phone. Next year, Rapid Patent plans to add remote access via dial-up and dedicated workstations.

Pricing ranges from $45 to $495, depending on the service, which is roughly equal to manual search costs, Toohey said.

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▲ *All this monkeying around with NT raises lots of questions. OS/2 has the answers.*

report that Windows 3.x applications run *20% slower* under NT than they do under OS/2 2.1!

Fact: OS/2 delivers powerful, reliable, client/server applications for data storage and retrieval (DB2/2,™ Oracle 7,® InfoPump™), communications (Communications Manager/2, REMOTE OS,™ TalkThru®), transaction processing (CICS, IMS Client Server/2 V2), comprehensive network management (LAN NetView,® CA-UNICENTER,®

The OS/2 client/server solution exploits your existing hardware and software investment. There's No Telling how much the NT solution could cost you. ►

cli NT

Domain/DACS,™ AlertView,™ Foundation Manager™), and more. Fact: The NT strategy is still Not There, and neither are native client/server applications.

Fact: OS/2 is committed to the industry-accepted Distributed Computing Environment (DCE) standards of the Open Software Foundation. Fact: NT is NoT.

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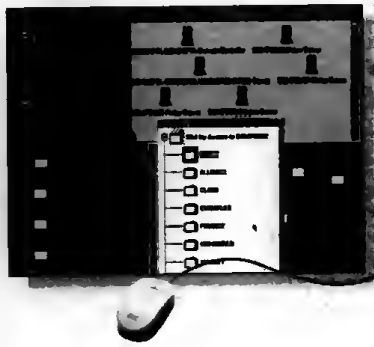
Fact: NT still Needs Time to prove itself in the real world. Fact: OS/2 is used by millions world-



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Briefs

Phones to get smarts

Tandem Computers, Inc. has agreed to sell imminent VeriFone, Inc. "smart screen" telephones to act as intelligent interfaces to Tandem servers. The phones, expected in mid-1994, will include a screen display, keyboard, modem, magnetic stripe card reader and system software for automating card-based transactions.

Eye on the sky

Two companies with planned worldwide low-earth satellite networks recently petitioned the Federal Communications Commission to accelerate the licensing process for this technology. Motorola Satellite Communications, Inc. and Loral Qualcomm Satellite Services, Inc. filed a joint proposal with the FCC.

No. 43786, call home

The city of New York's Department of Correction has introduced the Automated Inmate Call Management System, a computerized telephone program that will allow inmates at Rikers Island to make calls at their own expense. Inmates will be able to draw from their commissary accounts to pay for telephone calls using personalized bar codes stamped across their identification cards and personalized identification numbers.

World Vision

CONTINUED FROM PAGE 57

thousands of dollars to link — in our case — just one or two terminals in each remote location" to headquarters, Boivin explained.

According to Tim Mills-Groninger, program director of the Information Technology Resource Center, a consultancy for nooprofit organizations in Chicago, most organizations such as World Vision can put together LANs out of the box, "but WANs are trickier. There are not yet a lot of standards, and [telecommunicatioos] costs are not well-understood" by these organizations. Many nonprofits "come in throogh the backdoor" by developing a LAN and then installing remote access, he said.

Boivin said oot having a product like Package/PC diminishes the ability to have information on hand for donors, such as what is happening with a child they are sponsoring, where their moncy is going and what World Visioo projects are under way. This can get an organization "the reputation of being fly-by-night," which hurts donations and their eventual beoeficiaries, he said.

In World Vision's case, these are largely needy children in underdeveloped countries. The care and feeding of donors, which is increasingly dependent on database and communications technologies, is the path to delivering famine relief, medicine, shelter, training and other aid.

To get a better grip on donor-related information, World Vision Canada used its eight full-time developers and brought in another 10 to develop a customized database called the Donor Centered Support System, which houses child and World Vision project histories and manages marketing, donations and receipting for tax purposes. It was developed under a fourth-generatioo language program called AS/Set from Systems Software Associates in Chicago.

Quick answers

Having better interactive capabilities with the host "is a great help, because if a dooor has a question, I can have the answer in less than a mioote," said system oser Paul Huston, the 30-Hour Famine Representative for World Vision's Eastern Ontario territory, based in Kanata. The 30-Hour Famine project is a pledge-based "starvathon," in which participating studeots raise mooey for hungry children.

ON SITE

World Vision Canada
Toronto

Challenge: To ease access to database information and thus speed flow of food and training to those in need.

Technology: IBM AS/400, PCs and Package/PC connectivity software from Teleprimer International.

Benefits: More time spent with AS/400 host provides benefits such as giving donors answers to their questions within a minute.

In a development environment, "access to accurate, timely information by people who oeed it, regardless of location, is a benefit that leads to less overhead and better solicitation of resources; fundraisers can target prospects better and less expensively," Mills-Groninger said.

Currently, individual World Vision partnerships do not access each other's databases directly, though Boivin said a need is emerging to get faster information via antomation.

For example, Huston cited the recent earthquake in India: "The more quickly people know World Visioo activities and status in a disaster, the more quickly they can react with a donation."

However, there is an interoperability problem in that "we're all on different platforms in all the countries," Boivin said. Canada, though — which Boivin said tends to set the information systems pace for the whole organization — is looking to port its homegrown applications to C, which would render it available for other platforms.

Xyplex, Inc. has announced the 3350 Fiber Distributed Data Interface (FDDI) Concentrator, an eight-port, fixed-configuration FDDI hub.

Interfaces for standard fiber-optic cabling or low-cost twisted-pair wiring are available with the product. According to the Boxboro, Mass., company, the concentrator was designed to connect powerful network servers and "power users" who use high-speed workstations that produce a lot of network traffic.

The hub offers configuration options that include single or dual attachment to an FDDI backbone or dual homing.

The product provides a Simple Network Management Protocol (SNMP) agent that enables full network management from any SNMP-based management system.

The 3350 FDDI Concentrator with fiber-optic interfaces costs $9,750; the 3350 with copper interfaces costs $6,750.

▶ *Xyplex*
(508) 264-9900

LANQuest has introduced FrameThrower, a multiprotocol packet generator for testing bridges, routers and hubs.

The product was designed to address the need for fast, affordable network component testing and performance analysis.

FrameThrower provides traffic generation capabilities and can generate high packet-per-second output.

According to the San Jose, Calif., company, a single FrameThrower can fully saturate an Ethernet network by mixing as many as 1,000 combinations of protocols and packet sizes in a single transmission script. A sample library of packets and protocols is provided.

FrameThrower supports Ethernet, Token Ring and Fiber Distributed Data Interface networks and runs on any IBM-compatible host PC.

Prices range from $1,995 to $5,995.

▶ *LANQuest*
(408) 894-1000

Alcom Corp. and **TRS Technologies** have announced a software link integrating Alcom's LanFax Redirector network fax server with several software packages. They include Lotus Development Corp.'s CC:Mail and Notes, WordPerfect Corp.'s WordPerfect Office 4.0, Microsoft Corp.'s Microsoft Mail and any Message Handling Service-compatible electronic-mail system.

According to the Mountain View, Calif., company, FaxMail Gateway enables users to achieve greater returns on their networking investments by extending the functionality of their E-mail systems and LanFax Redirector servers.

The product offers compatibility with popular network operating systems, multiple inbound routing methods and the ability to handle heavy fax traffic.

The FaxMail Gateway package costs $995 for up to 50 users and $1,995 for an unlimited number of users.

▶ *Alcom*
(415) 694-7000

Micro-Integration Corp. has announced the 5250 Local Gateway for Windows.

According to the Cumberland, Md., company, the product is a local gateway that lets LAN workstations access IBM's AS/400 or System/3x hosts under DOS or Windows, with or without PC support.

On the same gateway, users can combine DOS and Windows sessions. To take advantage of increased speed and flexibility, users can also configure the network interface at runtime to Banyan Systems, Inc.'s Vines, Novell, Inc.'s NetWare or NetBIOS network protocol.

Supported Windows features include Dynamic Data Exchange; configurable, sizable and TrueType fonts; a flash pad to activate frequently used functions or macros; hot spots to select options from the screen; copy and paste; and Paste Link.

The product costs $2,495.

▶ *Micro-Integration*
(301) 777-3307

Digicom Systems, Inc. has introduced Sound Connection, a software-upgradable sound and modem card.

According to the Milpitas, Calif., company, the device mixes 16-bit stereo sound and 14.4K bit/sec. data/fax/modem functions on a single internal PC card using advanced Digital Signal Processing technology.

The product is fully software-upgradable, enabling users to dial into Digicom's bulletin board service to receive recent audio and modem-code revisions.

Other features include a built-in speaker for line monitoring, autobaud and automatic speed negotiation, flow control selection, an extended AT command set and CCITT V.32 bis modulation.

Sound Connection costs $299.99.

▶ *Digicom Systems*
(408) 262-1277

MicroAccess, Inc. has introduced the San Francisco Series family of Pentium and 486-based nonstop, fault-tolerant servers. The servers feature Advanced Network Operations Design engineering architecture.

According to the Fremont, Calif., company, the series provides an extensive real-time network management system, known as MIS Manager, that emulates Simple Network Management Protocol-type elements with a Windows graphical user interface.

The standard configuration for the San Francisco 466DS dual-server, 486DX-based 66-MHz system consists of two completely redundant file servers in one chassis.

Each server comes standard with 16M bytes of RAM on each motherboard (upgradable to 256M bytes), two 500M-byte hard disk drives, 1M byte of cache (with OptiMiser caching software), two dual-channel SCSI interfaces, five network interface cards, two modems, dual video cards, two uninterruptible power supplies with 30-minute battery backup and MIS Manager software.

The 466DS dual server costs $9,999.

▶ *MicroAccess*
(510) 249-9988

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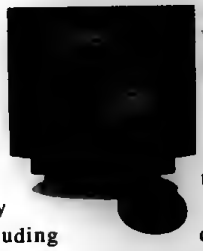

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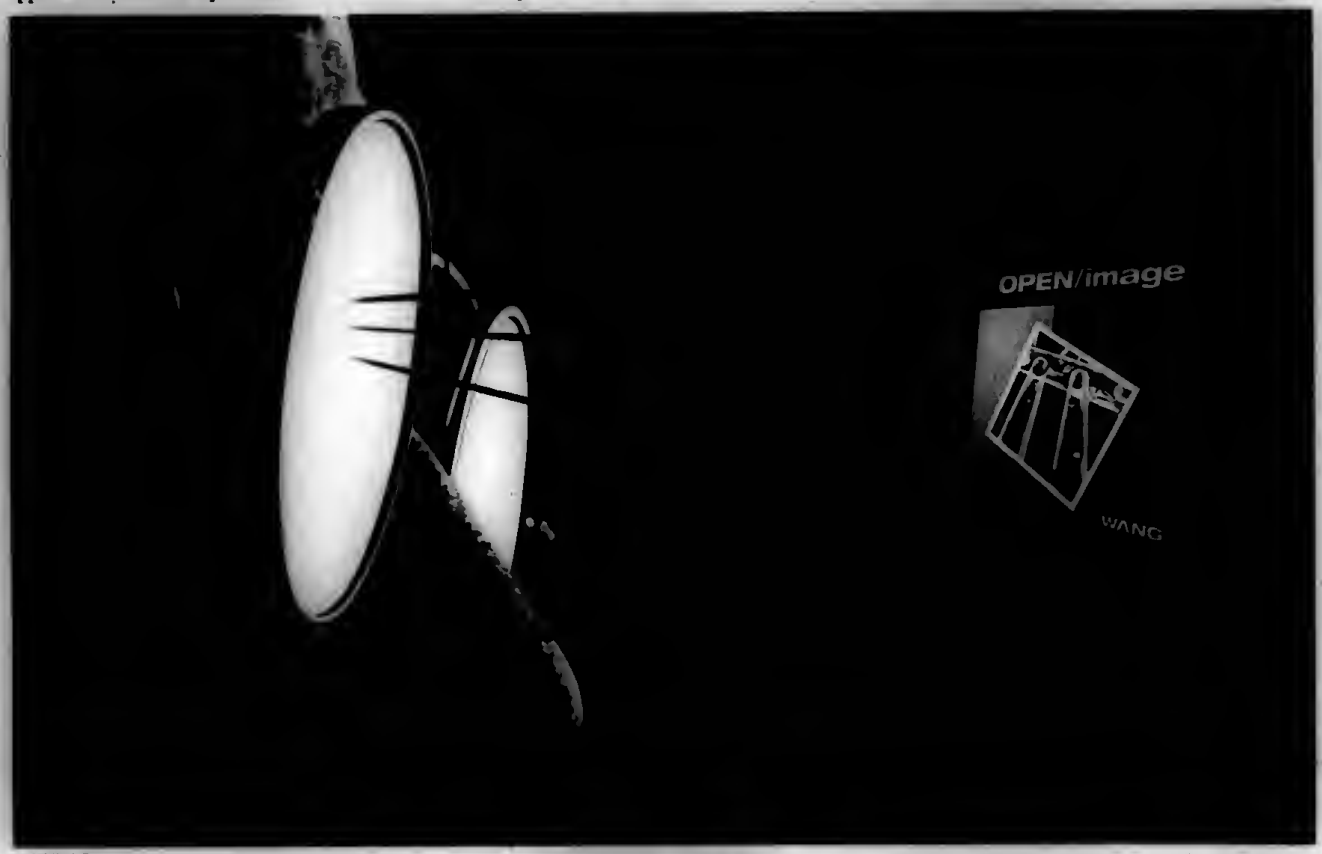

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WANG

THE POWER OF IMAGINATION.

Vendors push Unix to high-end machines

By Jean S. Bozman

■ Something big is happening on the high end of Unix server product lines. Today's top-performing commercial Unix systems are being edged out by symmetrical multiprocessor and cluster configurations.

Some vendors even plan to build parallel processors and alternative mainframes from conventional Unix workstations.

Many Unix vendors, including Sun Microsystems, Inc. and Silicon Graphics, Inc., have already fielded symmetrical multiprocessor machines; others, including IBM and Digital Equipment Corp., plan to ship symmetrical multiprocessor machines and "clustered" systems in 1994 (see chart).

The point of these parallel development efforts is to provide powerful servers for commercial applications, not the scientific and technical ones long associated with Unix superminis and supercomputers.

"The economics of workstations will move upscale to mainframe-class systems," said Gary Smaby, president of Smaby Group, Inc. in Minneapolis. "They will allow users who have topped out with their existing systems to migrate to higher levels of performance."

The future is not so far away, judging from vendor demonstrations of the next level of RISC-based systems. IBM is actively marketing its SP/1 parallel processor, which can run big relational databases for commercial or scientific applications. It also recently announced its ability to link up to four RS/6000 servers in a fault-resistant, "high-availability" cluster. And, it has installed an early-release version of an alternative mainframe called the Power 4, said Phil Hester, vice president of IBM's Advanced Workstation and Systems Division in Austin, Texas.

High-end RISC based Unix systems

VENDOR/ PRODUCT	TYPE	CHIP/OPERATING SYSTEM	PRICE
[illegible]	[illegible]	[illegible]	[illegible]
Hewlett-Packard Series 800 T500	Stand-alone, SMP data center	99-MHz PA-RISC/ HP/UX	$165,800
[illegible]	[illegible]	[illegible]	[illegible]
Power Parallel SP/1	Stand-alone parallel processor	62.5-MHz Power/ AIX	$329,200
[illegible]	[illegible]	[illegible]	[illegible]
Power Challenge XL	Stand-alone SMP	75-MHz MIPS TFP/ IRIX	$169,900 to $[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

The Power 4 can support users' parallel queries against large databases and connect with IBM's MVS-based mainframes through on-line processing monitors such as CICS, Hester said. It can outpace a typical symmetrical multiprocessor machine that uses shared memory and a single copy of the operating system. And, to prevent message-passing overhead among CPUs, it is not a "distributed memory" machine that has a copy of the operating system on each RISC chip.

The Power 4 is positioned somewhere between the two computing models, he said. "[Symmetrical multiprocessing is] great, but it does have finite scalability limits. For [on-line transaction processing] operations that share data, a lot of the communications overhead and latency associated with true, distributed systems becomes a limitation," Hester said. "We clearly see the demand for performance in both the technical and the commercial marketplace."

Sun plans to sell its symmetrical multiprocessor machines as high-volume computers and to leave the high-end designs to business partners such as Cray Superservers, Inc. [CW, Nov. 1]. Amdahl Corp. has agreed to resell the Sun symmetrical multiprocessor servers to accounts that have IBM-compatible mainframes. But installation of the eight-way SPARCserver 1000 or the 20-way SPARCcenter 2000 will depend on whether users want to create a large, integrated database system to support multiple applications, Sun said.

"It's going to be a question of the amount of throughput you need on the system," said Carl Stolle, manager of server product marketing at Sun Microsystems Computer Corp. "The more complex your application is in terms of the amount of data, the different types of data and the number of users, the more you want to load the data into a single database."

Scalable systems

However, key Unix vendors are not waiting for widespread user demand. They are moving to build a "scalable" series of RISC-based machines that will run binary-compatible code on all platforms in the series. "Because of the Lego-block approach these companies are using to build their next-generation machines, it will be easier to custom-configure systems for certain application sets or user groups," Smaby said.

Some users said the hardware technology is arriving ahead of the software that would support centralized process-

Unix, *page 68*

Nielsen outsourcing plan races to the finish line

By Mark Halper
NORTHBROOK, ILL.

Sometimes it seems that only glaciers move slower than outsourcing deals, that Pleistocene yields to Holocene in the time it takes to first negotiate a deal and then implement the cutover in information systems operations.

In some well-known examples, Electronic Data Systems Corp. closed its Continental Airlines deal well over a year after announcing it; The Hertz Co. signed with IBM's Integrated Systems Solutions Corp. nearly a year after word leaked out about negotiations.

And then there are the occasional time warps, like the one that kicked in after Nielsen Information Services signed a 10-year outsourcing agreement with EDS, estimated at $400 million, in late July.

By Labor Day weekend, only six weeks after the signing, Nielsen had shot down its own Green Bay, Wis., data shop, and EDS was churning 3T bytes of product and sales data into market reports for Nielsen clients out of its Plano, Texas, data center.

Price tag

Nielsen pays EDS on a "per drink" basis, incurring charges when it uses a CPU cycle or direct-access storage device. Charges vary depending on:

- **Time of day:** 7 a.m. to 7 p.m. is most expensive.
- **Volume:** Nielsen Marketing gets discounts as usage grows. Usage by other Nielsen and D&B operations goes toward marketing discounts.
- **Economics:** Pricing is adjusted downward as costs decline.

The pace actually picked up before the signing: Nielsen issued its request for proposals in April and told candidates that it wanted the job done within a month and a half.

"We put that stake in the ground early on," recalled Richard Derr, president of Nielsen Information, a division of Nielsen Marketing Research USA owned by The Dun & Bradstreet Corp.

Outsourcing analyst Cato Carpenter at Alex. Brown & Sons, Inc. in Baltimore pointed out that projects can move quickly if, as in the case of Nielsen and EDS, the goal is simply to move the customer's IS operations to a new site without major platform changes.

"It can be just like moving furniture, in a way, if the customer is willing to move quickly," Carpenter noted.

To keep things moving after Nielsen selected EDS, Derr yanked about 25 Nielsen staffers from their regular jobs to devote full-time attention to the migration. And to make sure they fulfilled their mission in a timely manner, he offered them that old reliable motivator: the almighty dollar.

"There were people who gave up their vacation, who delayed days off because they had a chance to get a monetary incentive," Derr said. "It was a team approach. If one person missed a key deadline, the whole team lost."

Working overtime, Nielsen and EDS adjusted code, addressed software licensing issues and undertook other technical and business issues to make sure all was running by Sept. 7, Derr said.

And then there was the cutover weekend.

"We physically transported the data with Lear jets and trucks," Derr said, explaining how the company moved mountains of data tapes to Plano.

Deal has paid off

In fact, truck drivers left Green Bay on Saturday and stayed at an overnight rest area in St. Louis, waiting until Sunday morning for two-way radio confirmation that Plano was ready for them. Otherwise, they were prepared to return to Green Bay.

So far, the deal has been worth it, Derr said.

Nielsen has used EDS to speed up the time it takes Nielsen to deliver reports to its roughly 650 clients, who are packaged goods vendors to the retail industry and retailers.

In fierce competition with its archrival, Information Resources, Inc. in Waltham, Mass., Nielsen sells reports that discuss how various products are faring in different stores and markets, with insights on the effects of merchandising

Nielsen, *page 68*

Multimedia

GUI to ease AS/400 coding

By Craig Stedman

IBM plans next year to start streamlining the development of AS/400-based multimedia applications so code can be written to run directly on a PC client.

Currently, AS/400 users interested in multimedia have to develop a standard character terminal application and add a PS/2 front end via IBM's Ultimedia Host Support/400 software — a two-step approach that IBM officials acknowledge is not optimal for positioning the AS/400 as a multimedia server.

Mark Even, manager of application technology introduction for IBM's AS/400 Division in Rochester, Minn., said graphical user interface (GUI)-based tools that will eliminate the need for the first step are scheduled to be available in 1994. "We're getting away from the separate stand-alone [PC] product," he noted.

Tool set

The tools will support direct application development for PS/2 clients "to some extent," Even said. However, he indicated that it will be another two or three years before the AS/400 has a full tool set and user interface for doing native multimedia development.

Even would not comment specifically on which tools would be available first except to say that "base enablers" such as multimedia editors will be included. Rather than developing its own tools, IBM is trying to persuade third-party vendors to build AS/400 hooks into their products, he added.

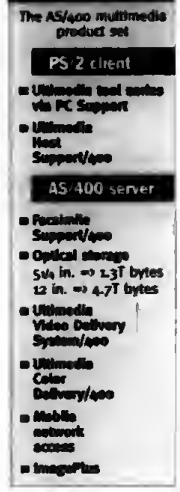
Sherry Rood, MIS manager for the Minnesota Twins baseball team in Minneapolis, which has sold tickets at 30 remote multimedia kiosks tied to an AS/400 for the past two seasons, said the direct PS/2 support should ease the development process in the future.

The Twins ran into "a few little glitches" putting the multimedia front end on an existing AS/400 ticketing application, "but overall it turned out very well," Rood said. The team plans to add a video merchandise catalog to the kiosks in the next few weeks and is also working with a third-party firm to offer job listings and government services, according to Bill Mahre, marketing vice president for the Twins.

Enterprise Rent A Car Co. in St. Louis will likely look at tying a PS/2-based multimedia application, now in development for use at its rental sites, to AS/400 back-end servers, said Marc Cohn, senior vice president of information services.

However, he described that as "kind of a loose concept" at this point. The application, scheduled to go live in December, will first run under OS/2 as a pure PS/2 application.

The AS/400 multimedia product set



Source: IBM

Other AS/400 users said they have little interest in multimedia. "It's a great technology, but we don't do technology just for its own sake," said James Bailey, senior vice president of data processing at Massachusetts Financial Services in Boston.

Teresa Elms, president of Elms Information Services Group, a San Diego consulting firm, said she sees "virtually no demand" for multimedia on the AS/400 at present. "It's a push from IBM's side to make it look like they're competitive" with Unix systems in advanced technologies, she said.

Mark Peterson, director of market research at ADM Consulting, Inc. in Cheshire, Conn., said AS/400 multimedia sales will likely remain limited for at least another year. The issue is not the technology itself but the lack of immediately obvious business uses for multimedia, he added.

That is a gating factor IBM has to overcome, Even acknowledged. "The challenge is finding uses that can be justified from a business point of view," he said.

Nielsen deal

CONTINUED FROM PAGE 67

and marketing gimmick campaigns. The company gathers its information from scanned and manual data that it buys from retailers.

According to Derr, the average time of report delivery has dropped from about 15 days to about 11 days since EDS took over.

The main reason for this advance is EDS' technology wherewithal. Leveraging its stable of mainframes, EDS provides up to 1,500 MIPS of power during Nielsen's peak demand hours. In Green Bay, Nielsen's power topped out at about 700 MIPS on two IBM ES/9000 computers and IBM 3090 600J, Derr said. Storage at Plano is set to expand to about 4T bytes.

Practice operations

Before going live on EDS systems, Nielsen and its customers on two different weekends practiced sending data from Plano to client sites.

Perhaps one of the reasons the outsourcing project moved along so quickly was Nielsen's ambitious plans for moving to client/server computing. Completing the outsourcing logistics helped clear the way for those plans.

Derr said Nielsen has not yet decided whether EDS will play operational roles and provide PC and LAN support, for example, in the client/server scheme or whether the EDS data center will house the Hewlett-Packard Co. HP 9000 that will host the new system.

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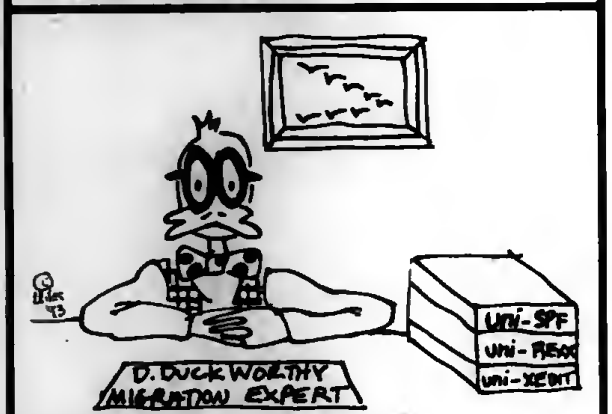

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Unix vendors

CONTINUED FROM PAGE 67

ing for distributed Unix applications, particularly software that handles job scheduling. Others said they see no immediate need for the high-end machines. Machines like Sun's SPARCcenter 2000, introduced a year ago, still provide excess capacity for some.

Users at large Unix sites are accustomed to spreading work among many workstations on a network. "Wall Street may need to have [a symmetrical multiprocessor] on one machine," said David Truch, a senior technical specialist at BP Exploration, Alaska, inc. in Anchorage, "but, for a lot of what we do, there is a virtual [symmetrical multiprocessor] machine on the network."

Incoming work gets parceled out to remote workstations for processing. Truch's group has more than 100 Unix machines, including nine Unix servers.

But if additional capacity is needed, the BP Exploration unit is more likely to match one of its current RS/6000 Model 580 servers, Truch said.

Developments

Recent developments in the high-end Unix server arena include the following:

- Sun's September announcement of the SPARCcluster 1.
- Cray Superservers, Inc.'s introduction of a symmetrical multiprocessor machine with up to 64 SuperSPARC processors and SunSoft, Inc.'s Solaris 2.3 operating system.
- IBM's announcement of general availability for its SP-1 RISC-based parallel server and early-release installations of its Power 4 alternative mainframe.
- Digital's October announcement that Alpha machines running the DEC OSF/1 operating system will be shipped as symmetrical multiprocessor and clustered machines starting in 1994.
- Silicon Graphics' introduction of the Power Challenge series of supercomputers, due to ship in 1994.

Chemical maker in brief Unix romance

After mulling solutions, Rodel elects to upgrade proprietary HP 3000

By Mark Halper
NEWARK, DEL

Before September, Rodel, Inc. had barely looked at Unix, but by the end of the month, the chemical company found itself flirting briefly with a Unix solution — though it settled on an upgrade to its proprietary minicomputer.

Rodel, which supplies polishing chemicals to semiconductor manufacturers and other industries, was deciding how to replace its aging Hewlett-Packard Co. 3000 Model 70.

So many options

Rodel's off-on-off affair with Unix exemplifies the schizophrenic decision-making many managers endure as they sort through the cornucopia of available solutions.

The company's objective was to install a box that would run Spectrum, Inc.'s Point.Man client/server order-entry software and boost communications among various Rodel sites.

Rodel data processing manager Paul Stark recalled that he had pretty much made up his mind to upgrade to an HP 3000 Model 947. Unix had been out of the question because of a perceived "lack of standards, lack of security and a lack of management tools," he said.

But at a Spectrum user conference in New Orleans in September, Stark had a revelation that made him think twice about sticking with a proprietary solution — and with HP.

What sent Stark back to the drawing board was a visit he made at the Spectrum gathering to a Computer Associates International, Inc. booth, where a demonstration of CA's Unicenter systems management software relieved some of his concerns about Unix.

"I saw Unicenter, which provided systems management tools and security, and at that point, Unix was a possibility," Stark said.

As it turned out, it was a short-lived possibility. During a later session at the conference, HP sales representatives reminded Stark and others that HP's road map for the 3000's MPE/IX operating system calls for adding more Unix features.

ON SITE

Rodel, Inc.
Newark, Del.

Challenge: To enhance networking and records entry and access at five sites in Delaware, one in Scottsdale, Ariz., and eventually at three international sites.

Strategy: Replace HP 3000 Model 70 with a more modern model that supports Novell networking and Spectrum's Point.Man.

Status: Upgrades expected in December.

"Unix and MPE are going to merge in a couple of years into a single operating system, so I'm going to stick with what I know," Stark said.

So, within a day, Stark agonized over throwing open his evaluation to a Unix implementation — a possibility that meant considering ditching HP — and then reverted to settling on a bigger HP 3000 box, the Model 947.

"It's strange, the kind of mental gymnastics you go through," Stark said.

Now Stark is readying Rodel for a December move to the 947 box.

Key to the switch will be the implementation of Novell, Inc. NetWare on the 947, which will act as the server for the LANs at Rodel's five sites in Newark and to the wide-area network connecting to Rodel's sales and marketing office in Scottsdale, Ariz.

Eventually, the company hopes to link its foreign sales offices in Tokyo, Seoul and Munich into the system.

Limited capabilities

With its Model 70 today, the company has limited networking capabilities. Connectivity software from Walker Richer & Quinn, Inc. ties PCs acting as terminals into the 3000; each of the company's 110 PCs can access information sent from another PC to the 3000.

Rodel already runs a small, 16-node Novell network, supported by an Intel Corp. 1486 PC, for its engineering group. That department would be the first to tie into NetWare on the 3000, Stark said.

In tying together the PCs, Stark hopes to improve customer support by giving staffers on-line access to old invoices, shipping details or other documents now stored on paper or individual PCs.

Stark estimated the upgrade will cost about $1 million — roughly $100,000 for the HP 3000 Model 947, about $450,000 for a 100-user license for Point.Man and about $80,000 for installing 100 486-based PCs either through upgrades or new purchases. Stark said the balance of the cost would come from rewiring Newark locations and from retooling the company's WAN.

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Manufacturing software

Planning tool links factory floor, engineering

By Ellis Booker

The widget, designed to perfection on a high-end workstation by an industrial engineer, reaches the factory only to face an engineering change before it can be built.

From an automated planning standpoint, that's when all hell breaks loose.

The change "is done either through paper or a phone call," said James M. Wejman, associate partner and senior product director for industrial software products at Chicago-based Andersen Consulting. "That whole process can take weeks, or months . . . and it uses people as message carriers."

Late last month, Andersen introduced a manufacturing planning tool designed to bridge this gap between design, engineering and production activities.

Called Computer Aided Process Planning (CAPP/D), the Unix-based workstation is the latest addition to Andersen's MAC-PAC/D manufacturing software line. According to Andersen, the tool is aimed squarely at complex manufacturers such as United Technology Corp.'s Sikorsky Aircraft Division in Stamford, Conn.

In fact, Andersen jointly developed the tool with Sikorsky and two Rockwell International Corp. units: the Space Systems Division and Rocketdyne Division in Canoga Park, Calif.

Good-bye paper chase

Through the use of a variety of vertical tools, big manufacturers such as Sikorsky have managed to boost quality and squeeze waste from factory design departments, Wejman said.

"But we think the new frontier will be gaining competitive advantage through project data management," he said.

At Sikorsky, the software has eliminated the paper chase, resulting in quicker revisions.

"We can automatically incorporate any process changes on the shop floor on-line," said John Delaney, Sikorsky's manager of manufacturing systems. The software has been in place for about a year and a half.

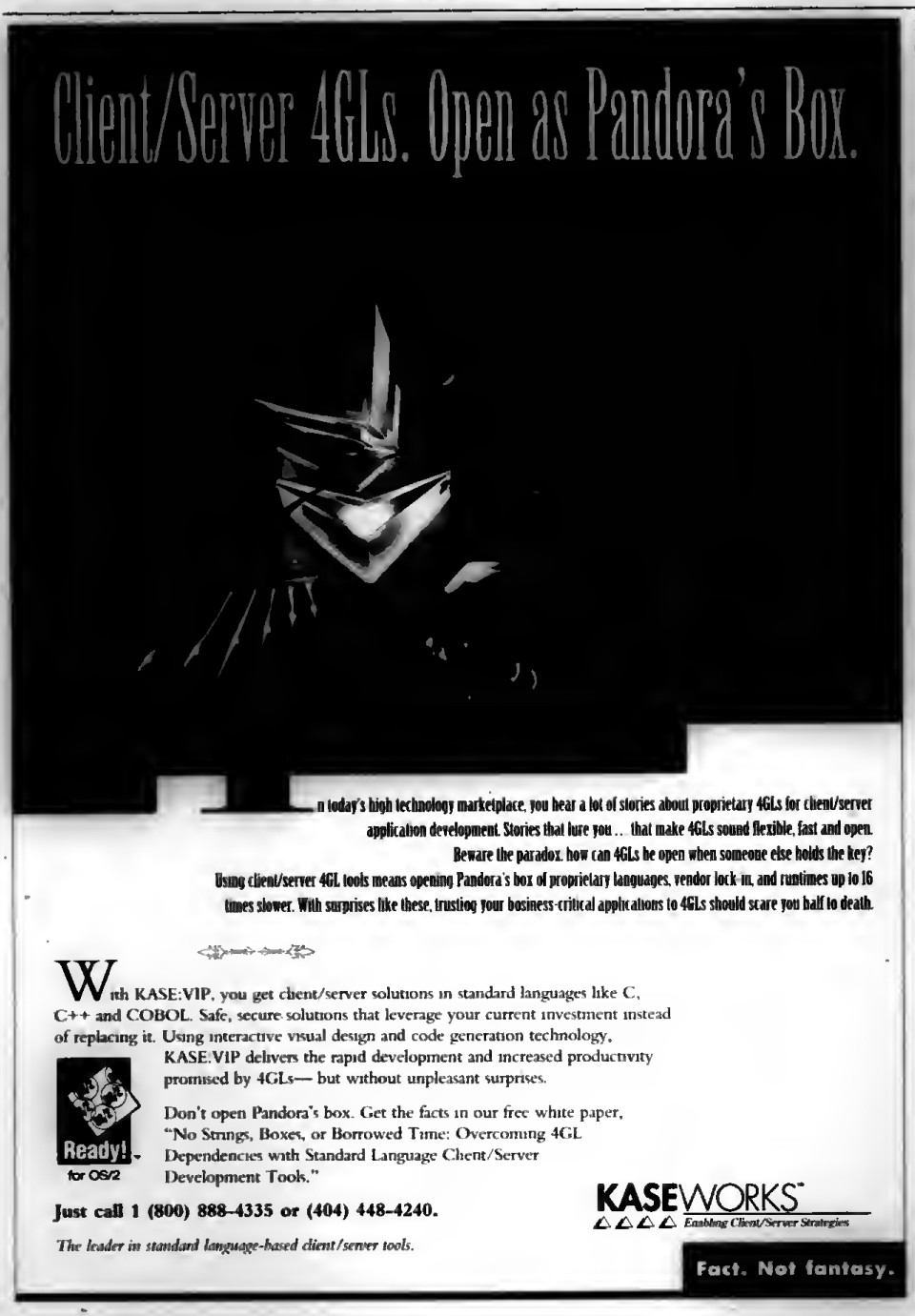
Both Sikorsky, which runs its entire manufacturing system on CAPP/D, and Rocketdyne have had the product in production for more than a year.

CAPP/D runs on IBM's RS/6000 and Hewlett-Packard Co.'s HP 9000 Unix systems. It features a graphical front end and uses a mainframe data repository. The software ranges in price from $135,000 to $300,000, depending on the server and the number clients.

Brief

One DBT price fits all

Utility software vendor The DBT Group, Inc. has gone with the industry flow and abolished tiered software pricing for its Compress family of database utility packages as well as for its other software. The Gurnee, Ill., company has instead adopted a one-price-fits-all CPU size policy. At the same time, DBT announced it will no longer collect fees from users who want to upgrade CPUs.



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Software

Sterling Software, Inc.'s System Management Division has introduced the Solve suite of systems administratioo products.

According to the Reston, Va., company, the suite comprises four products designed to address key information systems management disciplines: Solve: Problem, Solve:Change, Solve:Asset and Solve:Configuration.

Key functioos include the ability to identify and eliminate high failure rate hardware, nnreliable software and inadequato maintenance service.

The software includes an enterprise model that is common to all the Solve products.

Prices begin at $25,000.

▶ *Sterling Software*
(703) 264-8000

Micro Decisionware has announced its Database Gateway for SQL/400 with IBM's Distributed Relational Database Architecture.

Accordiog to the Boulder, Colo., company, the gateway runs on an OS/2 platform. It provides users with access to IBM AS/400s from developmeot, query and spreadsbeet applications wrltten to the industry-standard DB-Library and Open Database Conpectivity application programming interfaces.

Prices start at $18,500.

▶ *Micro Decisionware*
(303) 443-2706

Compuware Corp. has introduced DBA-Xpert DB2 Release 3.0, whicb includes remote DB2 subsystem management capabilities.

The product enables database administrators to simultaneously access and administer multiple DB2 systems on separate CPUs from a single DBA-Xpert session, according to the Farmingtoo Hills, Mich., company.

Features include automatic propagation of referential integrity changes to dependent keys and indexes; a fully integrated utility/direct-access storage devices manageme0t facility; a facility to import and implement new object definitions created by computer-aided software engineering tools, data dictionary tools or Dynamic Data Link tools provided with DB2 application software packages; and user-customizable job control language skeletons.

Prices start at $49,000.

▶ *Compuware*
(313) 737-7300

Generic Software, Inc. has announced BookReader for IBM's AS/400.

According to the Madison, Miss., company, BookReader provides AS/400 users with the ability to view and print IBM BookManager-compatible soft cover books at any AS/400 display station.

Other features include multiple-user support and advanced, automated methods for accessing and searching books.

BookReader costs $395 per CPU.

▶ *Generic Software*
(601) 853-1189

Cincom Systems, Inc. has announced six additional Control:Manufacturing modules for the Unix environment.

According to the Cincinnati company, Control:Manufacturing is a comprehensive business system that includes integrated support for manufacturing, distributioo and financial management.

The Unix modules include accounts payable and receivable, actual cost system and project cost control.

Prices begin at $150,000.

▶ *Cincom Systems*
(513) 662-2300

Hardware

Computer Power, Inc. has introduced Computersave Mark II, an uninterruptible power snpply for line conditioning and voltage regulation.

According to the High Bridge, N.J., company, Computersave comes fully equipped with galvanic isolation, which provides a physical shield against lightning strikes and isolation from power line noise. The product was designed for industrial and institutional applications.

Compntersave Mark II capacities range from 900VA to 19kVA.

Prices begin at $1,600.

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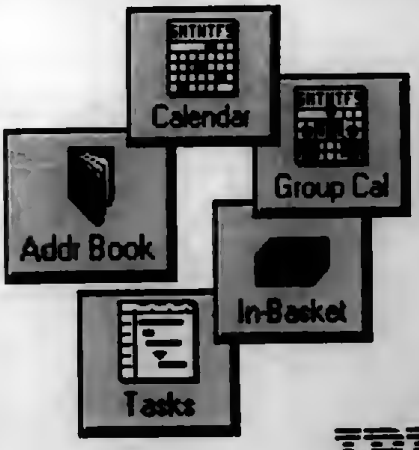

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A new role for the mainframe — "babysitting" Unix servers and assisting with LAN service and support.

Columbia University brings productivity up and bureaucracy down by implementing a new application system that incorporates electronic document imaging.

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Application Development

ENGLISH-SPEAKING DEVELOPMENT TOOLS, 76
NEW PRODUCTS, 77

PowerPC developers get kit from Apple

By James Daly

Software developers itching to build Macintosh applications for the upcoming PowerPC platform are getting a leg up from Apple Computer, Inc.

A small number of software development kits designed specifically for crafting applications on the upcoming line of RISC-based Macintoshes have been seeded in development shops running prototype PowerPC machines, according to sources within Apple.

A beta version of the Macintosh on RISC Software Development Kit is available from APDA, Apple's source for development tools. Apple says it expects to issue at least two updates between now and when the first PowerPC Macintosh is introduced. Updates will then be released approximately every quarter, sources said.

In January, Apple is expected to announce several models based on the PowerPC 601 chip, which is a collaborative effort by Apple, IBM and Motorola, Inc. Several models employing the new chip are expected to ship by March.

The APDA development kit consists of tools for Apple's Macintosh Programmers Workshop environment as well as a PowerPC-ready assembler, a C++ compiler and a debugger. The kit also includes a MacApp application framework designed for PowerPC Macintoshes.

Apple is still scrambling to get developers to craft native applications for the platform, which represents the company's future in hardware. Ten weeks before the expected unveiling

Apple, *page 74*

Object-oriented applications

Objects spell service for AAA

By Melinda-Carol Ballou

It ain't just for flats and dead batteries.

The American Automobile Association (AAA) is often thought of as a provider of emergency road service. But AAA officials said they want people to know that their group is also one of the largest travel agencies and sources of travel information. The organization is now trying to make travel data more accessible for 137 local AAA clubs across North America.

AAA's travel service application, TravelMatch, previously ran on AT&T's 3B2 minicomputers hooked up to dumb terminals. Over the past two years, the Travel Delivery Systems staff at AAA's main office in Heathrow, Fla., has been re-engineering the software to create an object-oriented application for Sun Microsystems, Inc. workstations. They have been using Lucid, Inc.'s object-oriented Energize tools, XVT Software, Inc.'s graphical user interface (GUI) painter tool kit and portability library and an Informix Corp. relational database management system.

While the new TravelMatch will initially run on dumb terminals and PCs attached to Sun file servers, this is the first step in a move toward client/server, according to Armando Ramirez, senior systems analyst at AAA. However, plans for that transition have not yet been finalized.

In two initial offerings, the clubs will be able to either purchase their own Sun server to run the application locally or use the Florida office as a TravelMatch service bureau and connect to the Sun servers over a frame-relay network, he said.

"This will save the clubs the cost of having to purchase a big box," Ramirez said.

In addition to providing easier access for the clubs, the re-engineering effort seeks to make

AAA, *page 74*

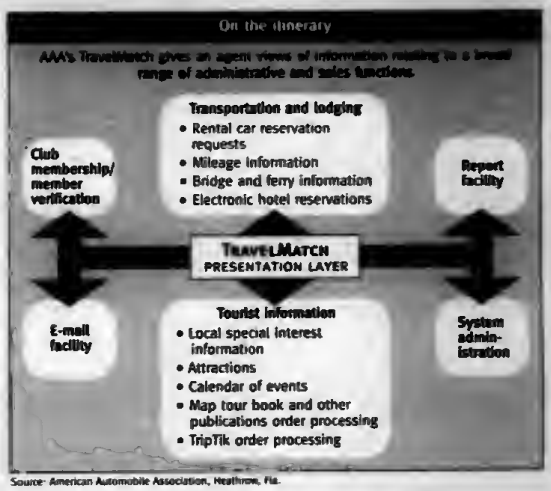
ON SITE

American Automobile Association
Heathrow, Fla.

Goal: To coordinate and centralize access to AAA's travel data for geographically dispersed AAA clubs.

Method: To re-engineer existing TravelMatch software using Lucid's object-oriented development tools, XVT Software's multiplatform tools and Informix's relational database management system to create an object-oriented application running on Sun workstation servers.

Benefits: Faster access to updated travel information for AAA clubs and easier maintenance.



Source: American Automobile Association, Heathrow, Fla.

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AAA

CONTINUED FROM PAGE 73

the application easier to maintain and enhance since the object-oriented structure is more modular, Ramirez said.

"Because [the application] is object-oriented, it is easier to break the systems apart if we want to provide subsets, and it's easier to add new sections to it," he said.

For instance, Ramirez's group was able to add bridge and ferry information to the new version of TravelMatch. A primary purpose of the software is to provide access to information that would normally be in tour books and can quickly become outdated. It is important to be able to easily incorporate changes as the information shifts, Ramirez said.

Trivia for travelers

"We include data that's important to people but not widely known, such as when the state fair happens in a small town, the local calendar of events, where bridges and ferries cross or when leaves turn color in Vermont," he said.

Making the shift to an object-oriented environment was facilitated by Lucid's Energize development tools, which offer a C++ compiler, good browsing capabilities and an underlying object-oriented database for incremental compiling and linking. XVT Software's tools made it easier to create the user interface because they allowed Ramirez's group to do both character mode and GUI mode: "It's the same source code; you don't have to change it," Ramirez said.

Several members of the development group had previous training in object-oriented development, which Ramirez said was helpful since they were able to act as mentors. An extra week of training for the development staff along with a presentation to upper management helped create the appropriate culture to support the move to an object-oriented environment.

TravelMatch also includes an electronic booking system for hotel reservations. This and the entire system are likely to move to client/server with Unix servers for PC/LAN clients in order to provide greater interoperability within the various TravelMatch applications (see chart page 73) and to allow clients to communicate with one another, Ramirez said. End users of the application at AAA headquarters spoke about the advantages of the new system vs. the old one.

Easy access

"The redesigned TravelMatch now is a menu-driven application which allows you to access information quickly without using function keys. You can move from screen to screen so that you can walk yourself through the application even without formal training," said Candace Christman, training technologist at AAA.

An expanded accommodations search lookup allows end users to do combined searches to determine customer lodging needs such as whether pets are allowed, whether the pool is handicapped-accessible or which Diamond rating a hotel has, she added.

She said beta users of the application are receptive to the pull-down menus and the additional information that was only available before in printed form. AAA travel agents can also order TripTiks, or customized maps for specific destinations, on the new system. The system then prints a work ticket with a peel-off label, and travel counselors assemble TripTiks.

Apple pushes PowerPC

CONTINUED FROM PAGE 73

of the PowerPC-based Macintosh, less than two dozen vendors have committed to providing native applications.

Apple spokeswoman Betty Taylor said many of today's Macintosh applications should run without modifying PowerPC, but the real advantages of the technology will be with applications that exploit the RISC performance. Older applications employing emulation code could run at half the speed of those running native PowerPC code, Taylor said.

Analysts said that number should increase, especially with the APDA development kit. "It's starting to get very busy," said Steven Eskenazi, an analyst at Alex. Brown & Sons, Inc. in New York. "Most hard-core development work gets done in the few months before a product comes out."

Working those applications

Third-party developers are also working hard to bring existing applications over to the new platform. At WordPerfect Corp., engineers are using Echo Logie's Flashport porting tool to port WordPerfect's Assembly code over to C, according to spokesman Dave Teran. Other companies, such as Microsoft Corp., are using their own porting tools.

Product manager Don Pickens said Microsoft plans to bring its complete Macintosh applications suite over to the PowerPC, with the rollout of native applications of Word and Excel by the first half of the year.

Apple is also optimizing parts of System 7 to improve performance on the PowerPC processors. Macintosh programs spend a lot of time calling procedures from the Toolbox. Apple has modified the Toolbox procedures that consume the most computation power to take advantage of RISC.

David M. Bernard

Windows of choice

Click... drag.. drag... click... click... drag... double-click... click... drag... PRESTO!!!

These days, this is all you need to do to write a Windows application. Once a test of programming expertise, Windows development is now so easy that almost anyone can do it. Of course, sophisticated projects do require some programming, but basic Windows development is no longer the task it was.

Choosing Windows as a development environment doesn't guarantee a good interface, however. Windows applications can be just as awkward, counterintuitive and ill-conceived as the worst DOS programs. Whether you are using Powersoft's PowerBuilder or SQL Windows in a client/server environment or Microsoft's Access or Visual Basic in a standard environment, you should keep the following guidelines in mind:

▶ **Choose controls based on the type of data to be displayed.** Vertical controls such as up/down arrows or vertical scroll bars work well for skipping through records, while horizontal controls are better suited for scrolling through additional detail for the same record. Most users "see" data in terms of a spreadsheet — rows contain records, columns contain fields.

Combo boxes should be provided so users can make a selection from a predefined list of values.

List boxes should be used to display many values related to the current record.

If selection of choices for a specific attribute follows a consistent pattern of numbering or lettering, spin controls should be used rather than combo boxes.

Check boxes are best suited for yes/no situations. Radio buttons should be used when a user has a finite number of choices to make for a finite attribute. An example would be a college administration system offering the choices "freshman," "sophomore" and so on.

▶ **Use aesthetics to communicate information about the data.** Using different background colors is a good way to differentiate changeable from nonchangeable data. Three-dimensional effects can help distinguish fields, labels and titles. For example, data fields can be displayed as sunken, labels as normal and titles as raised. 3-D also has the advantage of making an application appear more "real" and impressive.

▶ **If the application performs lengthy tasks that lock the keyboard, provide users with progress feedback.** For operations that are logically finite, such as copying files, a progress indicator such as a "thermometer" is a good way to accurately show the operation's progress.

For open-ended operations, such as processing a text file with an unknown number of records, a Macintosh-style clock with hands that move is a better choice. Never use both.

▶ **Avoid information overload and layered frustration.** Users want everything, and often programmers are only too happy to oblige with very informative and very cluttered screens. Information should be grouped into sets, based on how users actually work with the data. Related information should be a mouse click away, usually in a dialog box accessed by a button.

Think long and hard before hiding functionality more than two levels deep. (The classic example of what *not* to do is the printer setup dialog in Excel 4.0.) Excessive layering makes users angry. You can never have too many paths to a function.

▶ **Reduce, rather than enhance, users' dependence on pull-down menus.** Although a great advance over the cryptic "dot prompt" command sets common in character-based applications, pull-down menus have their own problems. They layer functionality, increasing complexity and ultimately frustrating users.

Developers should provide pull-down menus only as a last-resort method for users to access functions.

▶ **Code all possible ways of selecting data.** For example, when users need to select information from a list, they should be able to do the following:

- Click on the item, then press Enter.
- Double-click on the item.
- Click on the item and then click "OK."

Or, if the operation can be executed in batch, the user should be able to select several choices at once, using Shift and the arrow keys for contiguous choices or Ctrl and mouse clicks for noncontiguous ones.

There are lots of mature, high-level development environments available for Windows, which means you should be able to spend less time getting programs to work and more time advancing the usability of your applications. Take advantage.

Bernard is a technology management consultant at Omicron Consulting in Philadelphia.

PC/Icon: English-speaking tool

Natural Language tool lets users speak English

By Melinda-Carol Ballou

■ For developers seeking to allow users to query databases in native English, Natural Language, Inc. in Berkeley, Calif., last month introduced a Windows version of the company's Natural Language database query and development tools.

The Natural Language tools were available on Unix, but the development of natural language applications with that version was time-consuming, company officials and users said. PC/Icon, the new graphical Windows product, facilitates the process, they said.

PC/Icon lets developers build, test and debug natural language applications by creating the semantics and structure of a specific database. Developers are aided by four main windows that let them describe key business entities and relationships in English. PC/Icon can manage and track development of applications using a visual "global view" feature, and help and reference information is integrated into the tool.

End users type in an English query; PC/Icon parses the English query and performs a syntactic analysis to determine what is being asked. The product then generates the appropriate SQL statements.

"We're a long-distance telephone company and we're using [a Natural Language application] to detect fraud on our network," said David Luinstra, telecommunications development analyst at Wiltel, the telecommunications subsidiary of the Williams Cos. in Tulsa, Okla. "We also get performance data from our switches and provide that to our traffic engineering group so we can look at how the switches are performing."

Plenty of choice

Natural Language tools are available on Unix workstations and support all major RDBMSs, including Oracle, Sybase, Ingres, Informix and Rdb.

User-friendliness and user-acceptance are key for the Wiltel application, which is used by fraud detection analysts and traffic engineers. "It is an absolute that they don't know how in any shape, form or fashion to speak SQL," Luinstra said. "They don't know anything about the database."

Another user said the Windows interface is fairly straightforward and that nontechnical developers can create applications, though "the more they know about their business, the better."

SMI, Inc., a medical data services company in Port Jefferson, N.Y., used Natural Language's tools to create an automated data-collection scheme that incorporates information from 12 hospitals, according to John Napoli, a partner at the company. The SMI application allows hospital users to perform complex English queries across a range of data.

"It's like Lt. Colombo — you may know what the first five questions are, but based on those answers, you need to drill down further, and it's impossible to anticipate what those follow-up questions are going to be," Napoli said.

The new Windows release is less expensive, offers more deployment options and allows users to integrate data with other Windows desktop applications, such as spreadsheets or word processors, Napoli said.

Industry analysts said the lack of success of other natural language tools, such as one from Intelligent Business Systems, has to do with price and difficulty in creating applications.

Some other analysts said they feel Natural Language now stands a chance to successfully target the market with lower-priced Windows tools.

"There's a limit to the complexity of what you can put into a point-and-click interface, and natural language interfaces are more suitable where users want to ask more complex types of questions," said Colin White, president of Database Associates International, a Morgan Hill, Calif., consulting firm.

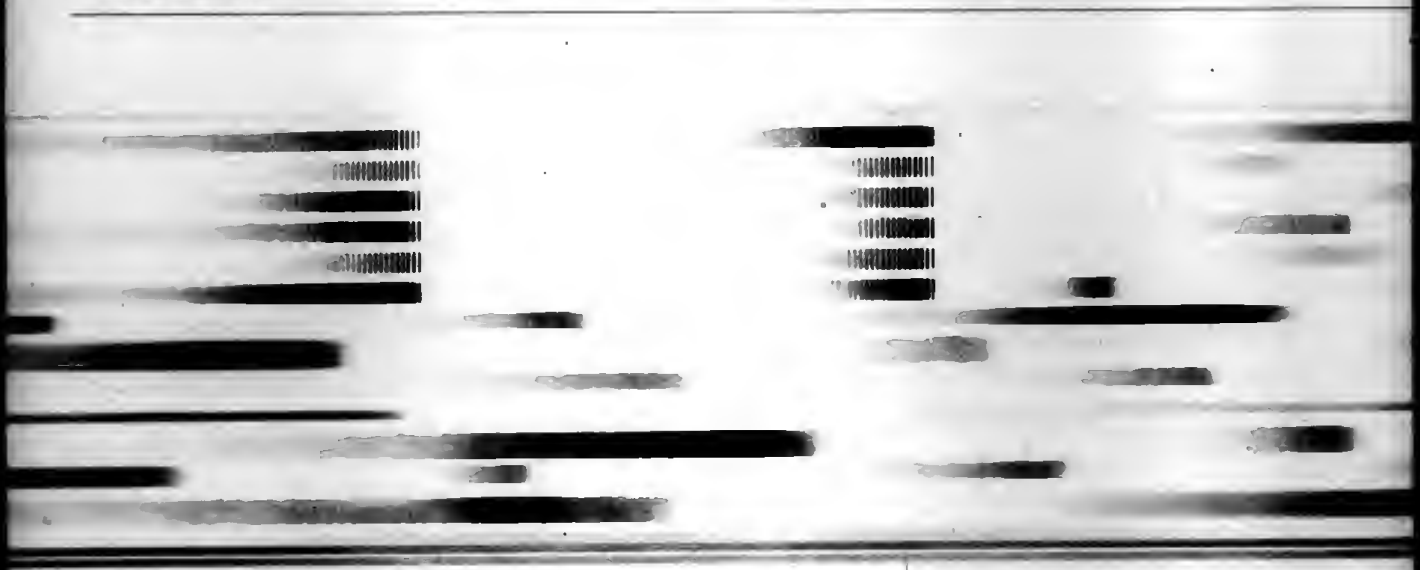
Information problem

But while PC/Icon hides the complexity of the database, developers must insert the business knowledge and vocabulary into the Natural Language application for it to be of use.

"The problem with [Natural Language] is that they haven't built up a good methodology for capturing information in a methodical way," said Rich Finkelstein, president of Performance Computing, Inc., a Chicago consulting firm.

Natural Language officials said the new Windows release offers a tutorial and methodology for incorporating the business information that will go on-line in the next release of the product.

PC/Icon is shipping now and is priced at $2,500 for a developer's version and $595 for a runtime license. PC/Icon allows developers to deploy applications on single Windows client platforms and to access database servers on Novell, Inc.'s NetWare, IBM's OS/2 and Microsoft Corp.'s Windows NT.



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95 Server

Liant Software Corp. has introduced C++/Views 3.0, an object-oriented development tool.

According to the Framingham, Mass., company, the product speeds up and simplifies the creation and porting of graphical user interface (GUI) applications among Windows, OS/2 Presentation Manager, the Open Software Foundation's OSF/Motif, Macintosh and DOS character-mode environments.

The prodoct unites more than t00 ready-to-use classes with programmer productivity tools. The library contains data, event, interface, printer and extended GUI classes.

C++/Views 3.0 prices range from $499 to $t,999.

▶ *Liant Software*
(508) 872-8700

Cadre Technologies, Inc. has introduced Ensemble Viewer, an interactive two- and three-dimensional graphical tool for visualizing C programs.

According to the Providence, R.I., company, the tool provides highly interactive views of key program aspects by displaying program information and test results stored in the Ensemble database.

Ensemble Viewer offers browsing capabilities for program flow, data structure and physical file structure program aspects.

Users can interact with the software design code and files by looking at a graphical representatioo of the actual program structure.

Ensemble Viewer will be available for Sun Microsystems, inc.'s SPARCstations next month and for Hewlett-Packard Co.'s HP 9000 and IBM's RS/6000 in February.

Ensemble Viewer prices start at $2,400.

▶ *Cadre Technologies*
(401) 351-5950

Software Maintenance & Development Systems, Inc. has announced Aide-de-Camp Version 9.0.

Aide-de-Camp is a software configuration-management system for Unix and Digital Equipment Corp.'s VAX/VMS platforms.

According to the Concord, Mass., company, this version offers an improved command language and supports an optional DOS client, allowing PC users to work with the Aide-de-Camp system over a oetwork to a Unix server.

Temporary data can be stored in memory, and Version 9.0 will support existing customer macros through a "Version 8.0 compatibility mode."

Aide-de-Camp Version 9.0 costs $3,500 for a single user.

▶ *Software Maintenance & Development Systems*
(508) 369-7398

Ernst & Young has introduced Navigator System Series 2.1, an application development environment.

According to the Irving, Texas, company, the product consists of five major components: bandbooks offering methods, techniques, tool guidelines and project-management techniques; an expanded monograph series providing additional information on core themes of the methodology; the Automated Methods Environment; education, including interactive desktop training and videos; and implementatioo services and support for adopting Navigator Systems Series.

HyperProject, a tool for customizing the methodology for specific projects, is also included.

A basic license costs $65,000.

▶ *Ernst & Young*
(214) 444-2100

Hitachi Software Engineering America, Ltd. has introduced PenAnalysis Data Modeling, pen computer-based business process re-engineering tools.

According to the San Bruno, Calif., firm, PenAnalysis Process Modeling is used for developing entity-relationship models during the business area analysis phase of enterprise re-engineering.

Users can collect and model business information and for further analysis, upload the data models into computer-aided software engineering systems.

Prices range from $845 to $24,495.

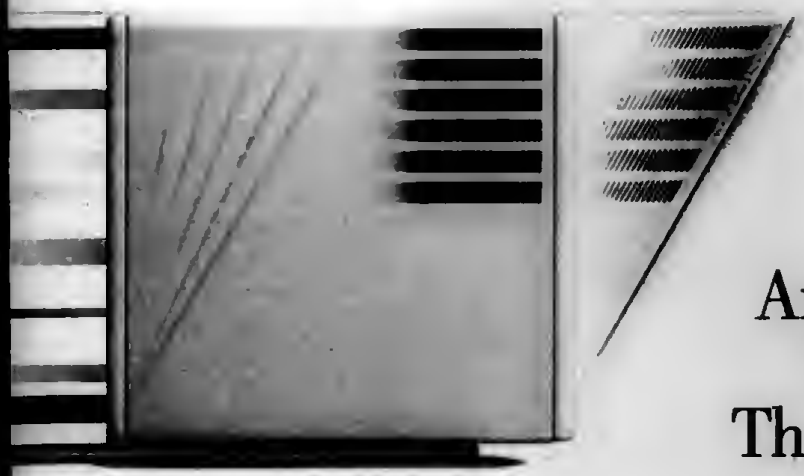
▶ *Hitachi Software Engineering America*
(415) 615-9600

The Alsys CASE Division has announced Object CM, an object-oriented configuration-management system designed to improve management of software development processes and increase programmer productivity.

According to the San Diego company, the product integrates an object base that is compliant with the Portable Common Tools Environment (PCTE) and provides a configuration-management system that includes a PCTE-based object-oriented repository, an object browser, a graphical user interface, a system administration facilit, and an assortment of personal productivity tools. Object CM can be extended to support process control over activities, including coding, documentation, software design, project management and software reose.

Through year's end the introductory price for a five-user license is $0,995.

▶ *The Alsys CASE Division*
(619) 457-2700



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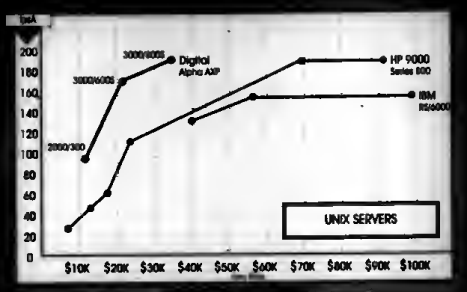

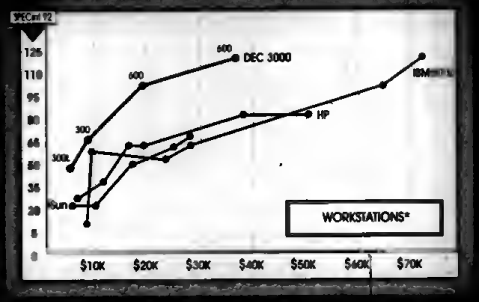

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digital

The cyberpunk movement is influencing art, music, literature and even supercomputer design. Are cyberpunks creative visionaries or merely

nERDS with an AttiTudE?

by candee wilde and david weldon

When employees in the information systems department start coming to work with a copy of *Wired* or *Mondo 2000* under one arm and begin showing "cyberpunk" traits, should you quickly change your computer passwords, or do you invite the employee to lunch?

The cyberpunk movement is changing as fast as technology itself, and today's cyberpunker is as hard to pin down as, well, cyberpunk. But IS managers may want to keep a close eye on those cyberpunks working in their midst: They may provide a valu-

Cyberpunks, *page 80*

Some argue that real-life cyberpunks are technology prophets, recognizing the mass-media opportunities of tomorrow, today

CONTINUED FROM PAGE 79

able window to tomorrow's IS frontiers.

Or, they may be someone with a hackerlike attitude you should be very worried about.

Or, then again, they may be no more valuable or threatening than anyone else in the IS department.

The answer depends on who you talk to.

cyberpunk \'si-ber-'pungk\ (n) 1: a late 20th century techno-revolutionary or someone who poses as such; 2: a hard-boiled hacker with anarchist inclinations; 3: a computer geek who likes Ministry; 4: as seen in *Time* magazine, a member of a countercultural "movement" of the same name, characterized by a combination of technological savvy and a rebellious lifestyle; 5: Billy Idol's comeback album; 6: someone who has delusions about living in the future; 7: someone who maintains that mirror-shade sunglasses (last seen on *CHiPs*) never went out of fashion.

Source: *Mondo 2000*, Issue No. 10

Tainted images?

Cyberpunk often conjures up images of social misfits dressed all in black with far-away stares, spiked or long hair and electronic gadgets hanging from their belts. Not only is that image "hopelessly outdated," say sources close to the movement, but it betrays what may be the value of these technovisionaries to the IS manager.

A positive view of cyberpunkers is held by Paul Saffo, a research fellow at the Institute for the Future in Menlo Park, Calif. Saffo is a recognized expert on the cyberpunk movement and has written extensively about it. He says IS managers should credit the cyberpunkers in their departments as being among their most creative employees and the ones who recognize where technology is heading.

"IS managers are going to have a hell of a time keeping up with the changes in technology," Saffo says. "They had better find out what direction the cyberpunk crowd is going in and latch on. The impact is likely to be significant, and it can be summed up by the term 'reinvention'" of new ways to do old things or new applications of existing technologies.

Up to no good

Holding a negative view is David Vaskevitch, director of enterprise computing at Microsoft Corp. "It's the same culture that 15 years ago was buying the blue boxes for free phone calling. It's a large anti-establishment subculture made up of mostly hackers."

A third view is reflected by Justin Rattner, director of technology at Intel Corp., who sees the movement in a mixed light. He says cyberpunkers may be focusing "on some pioneering practices" for information sharing, but he has doubts about how much the movement will influence IS staffs.

"I don't think they'll have any more impact on mainstream information systems than the Nintendo kids," Rattner says. "In fact, the Nintendo users will have had more impact."

The movement was spawned by William Gibson's darkly futuristic novel *Neuromancer*. Gibson coined the term "cyberspace," which he describes as a "consensual hallucination ... a graphic representation of data abstracted from the banks of every computer." In his novels, computer jockeys actually enter cyberspace and move around in the network.

Since its beginnings just a few years ago in the San Francisco Bay area, the cyberpunk movement has explored many technological frontiers. Born in the underground, cyberpunk has also been "surrendering" to the mainstream, and the 100 or so original "hard-core" cyberpunkers have now been replaced by legions of computer-literate people in the establishment.

While the movement toys with such topics as virtual sex and smart drugs that enhance intelligence and creativity, it has helped advance serious topics to the mainstream, such as virtual reality and wireless technology.

The movement, did, however, influence the design of Intel's newest supercomputer, according to Michael Barry, vice president of analysis at GVO, Inc., a Palo Alto, Calif., product design firm. The computer, called Touchstone Delta, is encased in a wall of light-emitting diodes. When the machine is running a program, lights blink on and off, representing communication between the computer's "nodes."

"It is like a dance of light, a ballet," Barry said.

To help design the product, Barry said the marketing team studied cyberpunk culture, science fiction novels and movies such as *2001* and *Star Trek*. It also visited a lot of computer centers to talk to programmers.

"We were seeing a lot of *Mondo 2000* T-shirts," he said. "The cyberpunk stuff is heavily in those centers, and the people are involved."

Cyberpunk is also having a real impact on aspects of the visual arts, music and technology. Hollywood has already borrowed from cyberpunk for several successful science fiction thrillers.

Saffo says the benefit of the cyberpunk movement is the creative way it looks at where technology has been and how things can be reapplied for new uses. These are "people with crazy ideas, and not a lot of adult supervision, who seize the technologies available and create something new of it," Saffo says.

Vaskevitch sees true cyberpunkers as computer cowboys roaming the Internet in search of the next IS frontier. They live by their own rules in a world where the PC is everybody's "equalizer."

Editors of magazines that pander to cyberpunks take an understandably benign view.

Queen Mu, *Mondo 2000*'s self-proclaimed "domineditrix," who sometimes goes by the name of Alison Kennedy, describes cyberpunkers as "digital dandies who are enchanted with technology and its possibilities."

Double identities

Many of the most avid cyberpunkers are highly successful IS employees by day and technogroupies by night, according to Queen Mu. Some are IS managers themselves. Others are free-lance computer consultants, holed up in their apartments overlooking Silicon Valley perhaps, communicating with the outside world by modem and electronic bulletin boards such as The Well.

Wes Thomas, the "futurist" for *Mondo 2000*, says the cyberpunk in any IS organization may be the one most in tune to the new technologies that the company should be tracking. "There's always an in-house visionary."

So, should IS managers remain calm if they see employees carrying the latest issue of *Wired* or wearing a *Mondo 2000* T-shirt? Or if they hear the word "cyberpunk" bandied about the office, does it mean their computer programmers are learning how to break security codes or "borrow" a little free telephone time?

The answers are most likely yes and no, respectively.

Familiarity with the cyberpunk subculture probably means an employee is highly computer-literate and open-minded and spends a lot of time thinking about how tomorrow's technology can shape today, according to Richard Wonder, vice president of IS at Robert Half International, Inc., a Menlo Park, Calif.-based recruiting firm. (Wonder is not involved in IS recruiting.)

Wonder acknowledges, however, that some abuse of corporate resources, particularly if a company is linked to the Internet, is probably taking place. Rather than taking a coffee break or talking to a friend down the hall, a cyberpunk employee might take 10 minutes to send an electronic-mail message across the country or browse through an on-line news service.

But *Mondo 2000*'s Thomas draws a sharp distinction between hackers, who "manipulate computer and telecom technology for the sheer joy of mastering it," and crackers, who are "criminals who engineer network pranks or steal or tamper with data."

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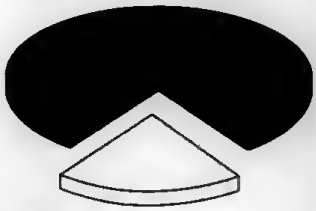

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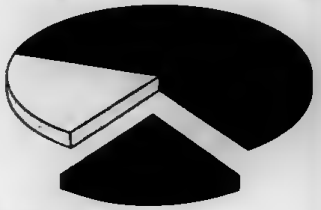

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22. Dir./Mgr. Tech. Planning, Adm. Svcs., Data/Tele. Comm. Network Sys. Mgt., LAN Mgr., PC Mgr.
23. Dir./Mgr. Sys. Development, Sys. Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific R&D, Tech. Mgt.
60. Sys. Integrators/VARs/Consulting Mgt.

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❑ Netware (b) ❑ Windows NT (f)
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Others see them as a threat to information privacy who delight in "hacking" information systems for selfish gain or even destruction

Many cyberpunk novel heroes are crackers, but few real-life cyberpunk wanna-bes cross that line, Thomas insists.

And Thomas says the cyberpunk offshoot, cypherpunk, has positive political and social agendas.

"The cypherpunk movement consists of encryption programmers and activists who are fighting to preserve electronic privacy on the nets through the creation and distribution of secure personal encryption standards. The cypherpunks are transforming the spirit of the original cyberpunks into practical and political action," he says.

Rathner feels the imminent interactive TV revolution will quickly offer up anything cyberpunkers can dream of in the way of high-tech multimedia communications. And with that, cyberpunk may find itself unable to keep pace.

But that view isn't shared by Alexis Rosen, a partner in Panix Public Access Internet, a New York-based company that provides access to the Internet to individuals and corporations. "The same ideals that drove cyberpunk — to make information more available and omnipresent, the goal of connecting everything to everything else — are the same things that drive the Internet."

Not so long ago, the Internet, which links about 2 million computers throughout the world, via phone lines, to data banks and E-mail systems, would have seemed like science fiction. Cyberpunk, for all its flaws, encourages people to think about technology and push the limits of current use. And that's the stuff new realities are made of. ■

Wilde is a free-lance writer in Easton, Conn. Weldon is associate editor, management.

Poster concept and styling: Marcy Walport; Photographer: Heide Foley; Model: Chris Hudak.

Calendar

NOV. 28 - DEC. 4

E-Comm '93. Atlanta, Nov. 29-Dec 1 — Contact: E-Comm '93 Conference, Dallas, Texas (214) 424-0562.

Fourth Annual Computer Fax Conference. Monterey, Calif., Nov. 30-Dec. 1 — Contact: BIS Strategic Decisions, Norwell, Mass. (617) 982-0500.

Retooling '93. Atlanta, Dec. 1-3 — Contact: Ziff Institute, Raquette Lake, N.Y. (800) 348-7246.

The Electronic Superhighway. Washington, Dec. 2-3 — Contact: Telecommunications Conference Department, Washington, D.C. (202) 842-3022.

DEC. 5 - DEC. 11

Database Marketing Conference & Exposition. Orlando, Fla., Dec 5-7 — Contact: The National Center for Database Marketing, Stamford, Conn. (212) 972-2410.

Lotus Notes Users Conference. Lake Buena Vista, Fla., Dec. 5-9 — Contact: Lotusphere '93, Sudbury, Mass. (508) 443-1457.

Computer Measurement Group: Managing the Wave of Technology. San Diego, Dec. 5-10 — Contact: Computer Measurement Group '93, Chicago, Ill. (708) 655-1812.

Wireless Datacomm '93. Washington, Dec. 6-8 — Contact: Communications Events, Inc., Norwalk, Conn. (203) 847-5131.

First International Newton Industry Platform Development Conference. Santa Clara, Calif., Dec. 7-8 — Contact: Knowledge Industry Publication, White Plains, N.Y. (914) 328-9157.

Internetwork Management Technology Conference. New York, Dec. 8 — Contact: Beaupre & Co., Portsmouth, N.H. (603) 436-8690.

"Outsourcing the IS Function." San Francisco, Dec. 8-9 — Contact: International Quality & Productivity Center, Upper Montclair, N.J. (201) 783-4403.

The Outsourcing Conference: "Opportunities, Strategies, Realities." Boston, Dec. 8-9 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880.

Database World. Chicago, Dec. 8-10 — Contact: Digital Equipment Corp., Andover, Mass. (508) 470-3880.

Strengthening the IS/Client Relationship. Minneapolis, Dec. 9-10 — Contact: Ouellette & Associates Consulting, Inc., Bedford, N.H. (603) 623-7373.

DEC. 12 - DEC. 18

Lap and Palmtop Exposition and Conference. Toronto, Dec. 13-14 — Contact: Laptop Expositions, New York, N.Y. (212) 682-7968.

JAN. 2 - JAN. 8, 1994

Third Annual Showbiz Expo. New York, Jan. 6-8 — Contact: ShowBiz Expo, Los Angeles, Calif. (213) 668-1811.

JAN. 8 - JAN. 15, 1994

ObjectWorld. Boston, Jan. 10-13 — Contact: World Expo Corp., Framingham, Mass. (508) 879-6700.

JAN. 16 - JAN. 22, 1994

Usenix Winter 1994 Conference. San Francisco, Jan. 17-21 — Contact: Usenix Association Conference Office, Lake Forest, Calif. (714) 588-8649.

Client/Server Conference & Exposition. San Jose, Calif., Jan. 18-21 — Contact: CMP Conference & Exhibit Group, Manhasset, N.Y. (516) 562-7460.

JAN. 23 - JAN. 29, 1994

Comnet '94. Washington, Jan. 24-27 — Contact: World Expo Corp., Framingham, Mass. (508) 879-6700.

JAN. 30 - FEB. 5, 1994

Executive Technology Summit '94. Tarpon Springs, Fla., Feb. 2-4 — Contact: ATI Travel Management, Chicago, Ill. (312) 644-6642.

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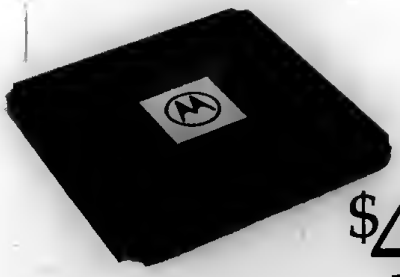

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Putting LAN and WAN traffic on a single backbone can decrease the cost of supporting multiple networks. But United Parcel Service and The Medical Center of Delaware are finding bumps on the road to internetworking, including iffy net management.

INTERNETWORK MANIA

■ **STAN FIEDOR AND BOB DAVIS** *at The Medical Center of Delaware have fought broadcast storms and agonized over net management for their internetwork*

Companies that maintain separate SNA and LAN internetworks are getting sick of the high costs of supporting these networks individually. A survey by Forrester Research, Inc. pegs the typical yearly support cost for a 5,000-user LAN internetwork at $6.4 million and at about $2 million for an SNA network.

To curb such expenses, companies are moving to consolidate and integrate wide-area network and LAN traffic on a common network backbone. Easier said than done. Issues such as SNA session response time, network integrity and reliability, SNA and LAN interoperability and network management come into play.

On the following pages you'll find the stories of two organizations — United Parcel Service, Inc. and The Medical Center of Delaware — that are slogging through internetwork projects. The medical center chose to build its backbone from scratch and bridge its multiprotocol traffic, while UPS is migrating to a router-based setup and awaiting IBM's Advanced Peer-to-Peer Networking with high-performance routing.

What's more, we've asked communications industry consultant David Axner to walk through the projects with us and offer strategic and technical takes on what the companies are doing.

Interviews with The Medical Center of Delaware and UPS were conducted by free-lance writer Joanne Cummings. David Axner, who provides the consulting advice in this piece, is president of DAX Associates, a LAN internetworking and security consulting company in Overland, Pa.

THE HESITANT TRAILBLAZER

UNITED PARCEL SERVICE

Laying the groundwork for a souped-up APPN

STRATEGY: UPS had been using X.25-based Token Ring LAN bridges and software gateways providing 3270 emulation when the majority of wide-area traffic was host-based. To enable LAN-to-LAN communications and to support distributed applications, the firm plans to move to Advanced Peer-to-Peer Networking routing based on IBM 6611 network processors by year-end 1994.

UPS knows that IBM's forthcoming APPN is a solution tailor-made for its heavily IBM internetwork. It's figuring out how to get there that keeps the information systems staff up at night.

A lot of companies are cautious about how they migrate to a router-based APPN setup, says Tom Ferro, project manager at the Mahwah, N.J., package delivery giant. But not UPS. "Right now, because of business needs, we have to move ahead," he says.

Two years ago, UPS internetworked its SNA and LAN traffic using a LAN bridging architecture. That option, which took advantage of UPS' private X.25 packet network, UPSnet, was designed to enable the company's increasing number of LAN users to communicate with IBM hosts in two data centers.

For that environment, the logical choice seemed to be LAN software gateways that provided 3270 emulation and linked up to the host via Token Ring X.25 bridges. After all, LAN traffic was primarily local, LAN-to-LAN traffic was virtually nonexistent, and the bulk of LAN-to-host traffic occurred in batch mode at night.

But about 18 months ago, UPS began deploying more LAN-based applications, which increased LAN-to-LAN and distributed application traffic.

The company has 13 regions in North America, which are divided into approximately 80 districts, explains John Bruno, telecommunications analyst at the company. "By pushing a lot of applications down to our lowest level — the districts — we can reduce costs and share services. That's a significant cost benefit."

Placing more applications at the LAN level lets the company consolidate several functions, such as commonications, routing and file and print services on the server, which makes them easier to manage.

The file servers also support the company's distributed database applications, including critical ones that track automotive parts and the status of UPS trucks and vans. Data moves throughout 100 buildings and between the host and offices. Bruno says consolidating data on file servers makes it easier to manage across the network.

At first, UPS looked at scaling up the bridged architecture to accommodate the new traffic. But that plan proved unworkable. "We went to routing because we needed a solution that was scalable," Ferro says. "Sheer numbers told us we needed an intelligent device to manage our traffic."

"With bridging, we had problems with control," Bruno says. End users, for instance, had to have their own configuration capabilities on the bridges because Bruno's group could not scale them up to meet connectivity requirements.

"We wanted to give users something that would let them navigate through the network without having to worry about how to get to that next LAN," he says.

Bruno says the network also experienced broadcast storms and network loops, unusual problems encountered when users try to scale up a very large bridged network.

The company has decided to go with a bridge/router hybrid network this year, deploying approximately 300 routers and integrating them with existing network bridges.

It hopes to move to a fully routed environment once APPN is available with high-performance routing. (IBM says this will likely be next year.)

In addition to avoiding problems inherent in large bridged networks, UPS hopes to gain cost advantages with routers because it will be able to deploy a host of new applications without incurring any new WAN costs.

Ferro's thinking is that once UPS moves to routers, the percentage of SNA traffic will go down while the number of applications using other protocols (IPX, LU6.2) not bound for the host will increase. "By taking the mileage down and pushing all those applications to where they need to be at a district level, we don't have to deploy more 56K lines. It's cost avoidance," he says.

Why APPN?

UPS has locked on to APPN as a goal for several reasons. Its customer service network, which is based on 80 IBM AS/400 minicomputers, is currently meshed together using APPN, which enables the machines to communicate as peers. In addition, UPS uses Advanced Program-to-Program Communications (APPC)-type applications that could take advantage of the peer-to-peer capabilities of APPN.

Ferro says the company has OS/2 database servers that could natively run APPN and OS/2 PCs running APPC applications. "Add that to the AS/400 network and you have a lot of requirements for APPN out in the network."

In addition, APPN should cut down on some network overhead.

But there are still problems, including prioritization, Ferro says.

For example, because SNA sessions are liable to time out if they incur any delay across the network, multiprotocol backbones need to assign a higher priority to routing SNA, rather than LAN, traffic. Although it is easy to customize the network so SNA users receive this higher priority, it's more difficult to change priority according to the individual application.

"You'd like the application to know that the SNA user is running a batch job and so should automatically be throttled back," Bruno says.

He'd like to see the industry move faster toward Asynchronous Transfer Mode (ATM). Right now, no protocol is robust enough for UPS to standardize on.

The company has had to contend with running SNA, APPN, TCP/IP, IPX and Banyan Systems, Inc. NetBIOS. "I'd love to have ATM to the desktop.... It would be like ISDN on steroids," Bruno says.

"We're blazing new trails," Ferro says. "We'd just like some input on whether we're doing it right."

COMMENT

Some routing features, SNA multiplexing and APPN traffic prioritization, will require hardware upgrades. Other routers use a technique called passthrough, which encapsulates the SNA/LC packet without translation and relays it to the destination. However, possibly high packet-switching overhead and poor response time.

Other routers use a technique called passthrough, which encapsulates the SNA/LC packet without translation and relays it to the destination. However, possibly high packet-switching overhead and poor response time.

Having applications on the server eliminates unnecessary network traffic and improves response time.

Bridges do not offer a scalable solution because they are limited by hop count. Hop count is the number of bridges a LAN frame can "hop" over from end to end. The current hop count limit is seven.

Bridges do not offer a scalable solution because they are limited by hop count. Hop count is the number of bridges a LAN frame can "hop" over from end to end. The current hop count limit is seven.

Bridges do not provide a firewall between network segments to halt broadcast storms. As bridged networks scale up, there is more of a chance of storms because all bridges receiving broadcast frames replicate them and pass them on. Although routers introduce complexity to the network, they prevent broadcast storms because they provide greater operating flexibility. Routers enable dynamic routing over the best path and look for alternate or redundant routes to eliminate or reduce traffic or outages.

Routers are more difficult to set up and configure than bridges and require a separate protocol stack for each protocol run on the network. Configuring a router can be very time-consuming, and debugging them may be exhaustive. However, router-based networks are available.

Leading router vendors have implemented priority control on their routers, enabling users to assign top priority to SNA traffic over LAN traffic. This control improves SNA response time and eliminates timeouts. But current measures tend to be proprietary and don't focus on different types of SNA sessions, such as interactive and batch.

APPN extensions for LAN/WAN internetworking have been released, enabling bandwidth for peer applications, support for an increasing number of users and support for high-performance backbone servers and applications.

THE MANAGEMENT DILEMMA

THE MEDICAL CENTER OF DELAWARE

Where, oh where, are the net management tools?

STRATEGY: Currently bridging multiprotocol traffic using encapsulation. Installing T3 links among three main sites — a data center and two hospitals. Moving from bridging to routing.

"Implementing a multiprotocol net is possible — we're doing it," says Stan Fiedor, manager of data communications at The Medical Center of Delaware in Wilmington, the largest health care provider in the state. "Managing it? That's another story."

In the past five years, the medical center has graduated from a ragtag network of 50 PCs and about 225 IBM and Data General Corp. terminals linked to hosts via 9.6K bit/sec. lines to a robust multiprotocol backbone. The setup enables users in its two primary hospitals to seamlessly access applications residing on LAN servers, minicomputers or mainframes.

Rather than having to cope with melding separate SNA and LAN backbones, the center built the new network to support diverse protocols such as SNA/Synchronous Data Link Control (SDLC), Novell, Inc.'s IPX, Xerox Corp.'s Xerox Network Systems (XNS) and TCP/IP.

Although the center was successful in implementing its universal workstation concept, managing the driver and gateway software was a monumental task. "One of the things we've slowly been working on and has been a challenge for us is managing those multiple protocols," says George Brenckle, director of computer services at the center.

In the end, the information systems group, led by information center manager Bob Davis, built its own server-resident software that checks each PC when it is booted to ensure it is configured properly. If it is, the PC is allowed to boot. If it's not, the software wipes out the old or inappropriate software, loads the correct configurations and allows the PC to boot.

"If you don't have something like that," Fiedor says, "you're stuck with manual updating, which is resource-intensive. You can't get it from a vendor because I don't think most vendors understand the problem well enough."

The medical center supports SNA traffic over the network through encapsulation. For the 200 or so terminals on the network, the SDLC packet gets encapsulated within the XNS protocol for bridging to the data center, where it is stripped out and passed to the CPU. The PC-based SNA traffic is encapsulated in IPX and stripped out at its destination.

According to Fiedor, neither method has caused any problems, and response time has been very good: 0.6 to 0.8 seconds.

The center has experienced broadcast storms typical of large bridged networks but tracked the problem to an automated session reconnect feature and modified it.

What IS found was that whenever there was a network problem, the autoconnect feature would constantly try to reconnect every session, resulting in a broadcast storm. Brenckle says IS modified the feature so users would get prompted to hit a key that would reconnect them. "It's more random that way, rather than with the PCs, which tend to do it once a second."

The fact that the medical center has not experienced problems with prioritization and bulk file transfer likely has to do with its network configuration. The company decided to centralize its cluster controllers and gateways instead of following the traditional SNA approach, which consists of linking a front-end processor via low-speed lines to distributed remote cluster controllers. With controllers local to the mainframe, users get subsecond response time.

The firm used the same approach with its LAN gateways, which consist of a PC connected to a 16M bit/sec. Token Ring network at the data center and an Ethernet connected to the T1 backbone. The gateway connects SNA users to the IBM mainframe via a local cluster controller attached to the Token Ring. Here, also, LAN users got subsecond response time.

An added benefit is that equipment is easier to maintain because it is centrally located. For instance, the company is able to resolve hardware problems quickly by substituting on-line spares.

The next phase of the multiprotocol network implementation calls for replacing T1 lines with T3 lines between the two hospitals and the data center, as well as moving to a router-based architecture. One T3 link is already in place.

"We're looking at going to routing in order to make the T3s more efficient as far as what information goes across," Fiedor says. "We'll also use them as a firewall against broadcasts."

But even with the increased throughput from the T3/router scheme, the medical center is facing several challenges. True network management tools — na par with the system management tools found in minicomputer and mainframe environments — are just not there, Brenckle says. "Distributed network management is a challenge."

Fiedor agrees. "We need to manage everything from mainframes, with products like NetView, all the way down to managing the wiring infrastructure," he says. "We've gone as far as taking all our blueprints and putting them on a CAD system so we could manage our wiring a little bit better."

The center is planning to implement native management systems for each platform and tie them together with a "manager of managers." It has chosen Ungermann-Bass, Inc.'s NetDirector.

This setup would enable IS to control all platforms from a single workstation. Fiedor says he would also like to eventually implement a rules-based system that would enable him to automate repetitive management processes, such as maintaining print queues and ensuring terminal availability.

Another challenge facing the medical center is that changes in health care practices have begun to put pressure on it to tie more remote sites, such as doctors' offices, into the network.

The organization is looking at several options to do this, including Integrated Services Digital Network services and high-speed modems based on Vfast technology.

"Our aim with the foundation we have is to be able to accommodate whatever comes down the pipe," Brenckle says. a

COMMENT

[illegible]

This strategy works well for the medical center; however, it was not able to use a common encapsulation method for the entire network because it uses two network protocols: XNS and IPX.

[illegible]

IS took about eight hours to install the T3 line. There was an interoperability problem among the attached devices, a common occurrence when installing T3 links.

[illegible]

The tie between the native management systems and UB's NetDirector is Simple Network Management Protocol (SNMP). Each device in the network loan SNMP agent to NetDirector, which monitors the operation and issues commands. Potential problems may surface if the agent's SNMP management information bases (SNMP) don't comply with standard SNMP MIBs.

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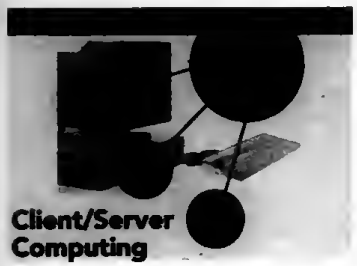

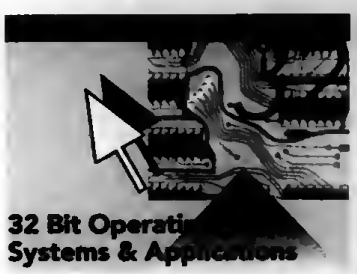

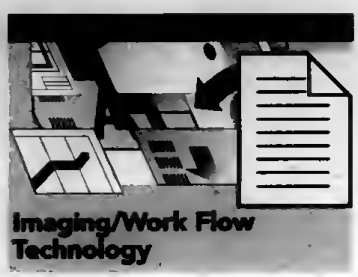

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Training expectations

Some companies are meeting the significant information systems training needs head on

By Joe Panepinto

WHEN 3M CO. put together its Design/Developer Learning Laboratory in St. Paul, Minn., it was responding to pressures on corporate training departments and attempting to arm information systems staffs with up-to-date skill sets.

"In the past, when you were dealing with traditional Cobol development, for example, there weren't a lot of design choices," says Bob Roepke, manager of information technology education services at 3M. "That whole world is changing, and we have to work with people in developer/designer roles to help them evaluate the choices they have."

The broad changes afoot in the way IS professionals are being trained include changes in timing, methods and the relationship of training to working in an organization. A look at IS training in several organizations with large training needs can shed light on current trends at large companies.

At 3M, training is taken very seriously. Roepke's education services unit employs 31 trainers and consultants and has been involved in training more than 11,000 of its own employees so far this year.

Like many large companies, 3M is revamping the training it provides. In contrast to traditional methods where staffers take courses they think they need, training is integrated more tightly with overall business goals and initiated by the needs of specific projects.

According to analysts, it is impossible to estimate the amount of time IS personnel can expect to spend in training, but they agree that training is now provided at different points in an IS career.

"We think the day of stand-up classroom training months in advance of any project is not enough in a time of rapid technology change," Roepke says.

3M Co.

Training is driven by departmental projects, allowing tight integration with planning and development. This way skill requirements are addressed much earlier in the project lifecycle.

At 3M, department projects are likely to drive the timing of an IS employee's training.

For example, once a project management team for developing an application is in place, the project leader will bring in a consultant or trainer from Roepke's organization. Project needs are then identified in three key skill areas: human dynamics, business knowledge and technical skill.

Once roles have been identified and the appropriate level and skill type set, the trainer and project leader attempt to map personnel into those roles. Along the way, skills gaps are identified, and a training regimen is tailored to close those gaps, Roepke says.

Carolina Power & Light Co.

Annually maps out a training plan for each IS employee. Identification of training needs generally comes from the core course curriculum required of each job classification developer and specific project-based training needs.

A similar project-driven training process is part of overall employee training and education at Carolina Power and Light.

Every year, a training plan for each IS employee is mapped out and supplemented by specific project initiatives, says Cindy Smith, manager of computer services at the Raleigh, N.C.-based utility. In general, the identification of training needs comes from two sources: the overall corporate core curriculum of courses required for each classification of employee, such as analyst and developer, and more specific project-based training needs.

For example, an application developer may be required to take a course in soft skills, such as negotiation, by virtue of his employee classification. The company specifies core courses for each job classification, and those courses must be completed within a few years of promotion to a classification.

At Deere & Co. in Moline, Ill., the IS department is moving toward self-directed work teams, which shifts the emphasis from training to education, says Ron Sonnenburg, director of IS.

A training program for every IS employee is laid out in an annual training review and is evaluated on three levels: business, cultural and skill.

Traditional training has focused on technical skills, emerging technologies, standards and new tools packages. Education is focused on cultural and business information and includes classes that span Deere's lines of business, such as sales operations, manufacturing, team building, group problem solving and empowerment.

Deere & Co.

Annually maps out a training plan for every IS employee. Evaluates skill levels in three areas: business, cultural and technical expertise. Includes classes on everything from Deere's lines of business to team building and group problem solving.

"A key thing happening at Deere is that application development is becoming less and less a part of our jobs," Sonnenburg says. "We are becoming more and more systems integrators."

Panepinto is a free-lance writer in Amherst, Mass.

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A recent survey of 512 companies found that more than 60% predicted they would increase use of interactive video, computer-based training or other digital training technologies over the next three years, while only 18% predicted an increase in classroom training. Part of the reason for the shift in emphasis is the high cost and nontailored nature of classroom training.

Source: James Martin/National Education Training Group, Naperville, Ill.

By Joe Panepinto

Training opportunities are being identified more proactively and tied more closely to specific project needs at some larger information systems organizations. Changes are also happening in the way training is being delivered.

Most large IS organizations have long since moved beyond the traditional classroom education model toward a mixed-media approach that relies on tools such as computer-based training, remote teletraining via interactive television and electronic performance support systems. The reason for this approach is a desire to close the gap between training and working.

At 3M Co. in St. Paul, Minn., for instance, the newly built Design/Developer Learning Center allows hands-on development in a more realistic technical environment. Similarly, Carolina Power & Light Co.'s desire for hands-on training often has it bringing in vendors instead of sending people out to train because it wants developers to have hands-on experience in the same computing environment in which they work.

"We prefer to teach people using their own machines because it works better than sending them off and having them bring [technical information] back and apply it," says David Keys, manager of data resources and the development center at the utility.

For example, developers working on a project using Foundation, Andersen Consulting's computer-aided software engineering product suite, needed a minimum of 16M bytes of RAM for actual development — far more than one finds at most training centers. So Carolina Power & Light brought in on-site trainers from Chicago-based Andersen Consulting to work on the pilot in what would be the actual deployment environment.

Pupils become teachers

Not all changes in IS training involve high-tech problems and solutions, however. For example, when developers and analysts at Carolina Power & Light are sent off-site for training, the organization views it as an opportunity to instill a sense of group responsibility. If a technical area is deemed appropriate for a particular group of analysts, one will be sent to the off-site training with the understanding that the information gathered will be shared.

The analyst presents a report on the new technology tailored to Carolina Power & Light's needs and, in the process, is practicing soft skills and enhancing the feeling of group responsibility.

"It is pretty much ingrained in our culture now that training is not so much to go off and entertain yourself but to learn something you're going to share with your peer group," says Jay Brown, manager of operating system client services and coordinator of training programs at Carolina Power & Light.

Panepinto is a free-lance writer in Amherst, Mass.

Electronic performance support systems

In an atmosphere thick with acronyms, one stands out as the most often invoked in terms of corporate education and training: EPSS.

Electronic performance support systems go beyond computer-based training and attempt to embed training directly into software packages and systems so there are not separate domains for each activity.

"The essence of EPSS is to eliminate the need for training," says Gloria Gery, president of Gery Associates and the expert who coined the phrase "electronic performance support system" in 1988.

In contrast to computer-based training applications, which are essentially stand-alone electronic courseware, the goal of EPSS is not to provide a separate help environment but to embed within applications tutorials, reference materials and other information that will support a work process. For example, in Microsoft Corp.'s Profit application, users have a single interface through which they are connected to items such as spreadsheets, tutorials and on-line references. At no time, however, do users leave task mode.

Even though EPSS has more obvious utility in end-user, shrink-wrapped applications, Gery says everybody — including IS staffers — is an end user of software.

IBM, for instance, has been emphasizing EPSS, says Barry Arnett, education consulting executive at Skill Dynamics, IBM's Thornwood, N.Y., training subsidiary.

Because IS personnel have less time to spend in formal training, developers are building directly into applications features such as tutorials, on-line databases and expert systems shells that act like coaches.

— Joe Panepinto

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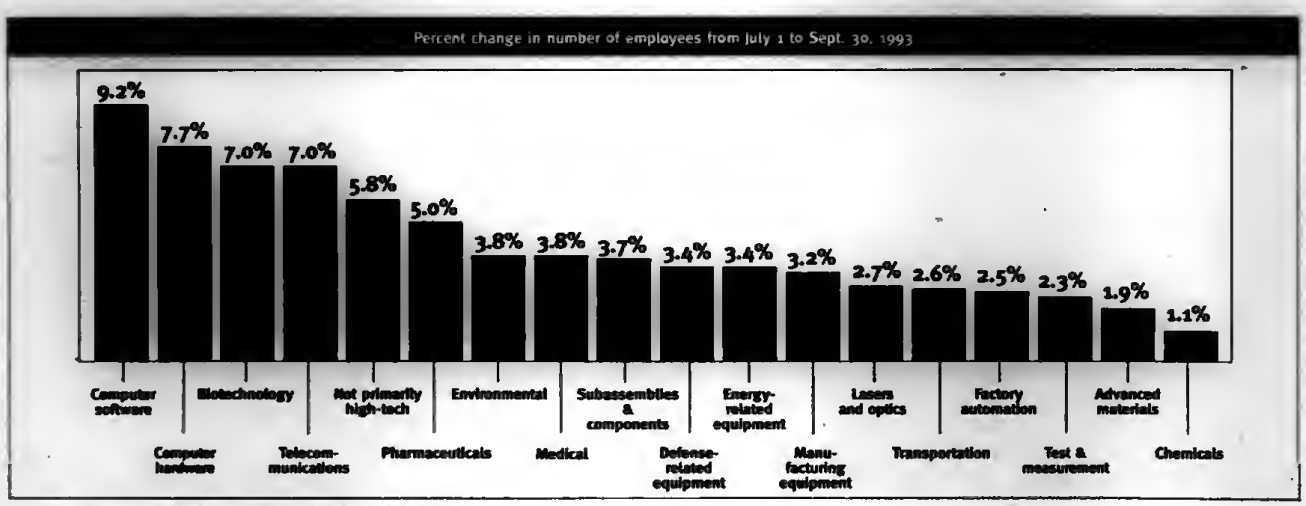

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SOFTWARE CONTRACTS

Reduce risk by haggling over contract verbiage

wheeling & dealing

By Joe Auer and Mark Demboski

Would you lease a $20,000 car for $20,000 down and a $3,000-a-year maintenance fee if you were the only one allowed to drive it, look under the hood or read the owner's manual? If not, then why would you sign a vendor's standard form software license, which limits you in the same way?

Almost all software licenses contain provisions that, either on their own or in conjunction with copyright law or other contract provisions, place undue risk on the licensee.

The following are examples of common provisions often left unchanged during software contract negotiations. In many cases, these provisions can be adjusted to benefit the licensee.

Choice of Law

When drawing up software licenses, watch out for contract wording that reduces your ability to defend yourself if the contracted relationship fails and the vendor threatens to sue.

The best leverage is to specify in the contract "choice of law" — the state whose laws you will abide by in case of litigation. Ideally, this should be your company's home state.

While most companies specify the choice of law, they do not establish the specific venue and jurisdiction, leaving the choice of location open to the action's initiator. For instance, if you specify California as the choice of law when the vendor brings suit in New York but you neglect to choose the venue and jurisdiction, you could be required to have attorneys familiar with California law present for New York court appearances — a potentially expensive situation.

To prevent vendors from forcing you or your attorney to commute to their venues, add wording to the provision to the effect that "any action or proceeding brought by either party against the other arising from or related to the software license shall be brought in a court of competent jurisdiction located in your home state and even your local area." Both parties must also agree to recognize the jurisdiction of the specified court.

Warranties and Remedies

A breach-of-contract suit occurs when one party fails to perform its obligations. Generally, this does not occur when responsibilities and specific solutions for failure to perform are clearly defined. Therefore, it is up to you to ensure that no gray areas exist in the contract in terms of warranties and remedies.

For instance, a warranty could state that the "vendor warrants that the software, if installed as specified, will operate substantially in compliance with the specifications. Verified program errors will be corrected if they can be recreated on the vendor's system with customer data, or if not corrected, the customer's sole remedy is to receive a refund for the software containing the error."

This warranty, however, poses problems if the "software containing the error" is not stand-alone. In fact, if the software is coupled with a modular software license where the additional modules are just as important to the system, the results can be costly.

As is, this provision potentially allows the vendor to fulfill its obligation by refunding the cost of, say, a $10,000 add-on module, while the remaining $200,000 piece of the system is unusable or provides limited benefit.

An adequate warranty is one that provides for a total refund at the customer's option and the ability to terminate the license if the vendor cannot make any part of the software comply with the specifications spelled out in the agreement.

Confidentiality

Many standard license agreements place total and absolute responsibility for software confidentiality on the licensee. Standard contract language may also restrict the software's use to company employees, which is generally unacceptable.

A revised confidentiality provision should state that contract personnel, consultants and other persons performing work for you or on your behalf will have access to the licensed software and materials.

You should also take steps to relieve the "absolute" nature of the clause to the effect that you will use your "best efforts" to protect the confidentiality of the licensed software and materials, as well as use your "best efforts" to prevent the creation of unauthorized copies. If you don't and the vendor learns there has been unauthorized access, it could sue for breach of contract or, more likely, threaten to sue if you don't pay an additional fee.

Maintenance

Some vendors use a "required maintenance fee" clause that guarantees only that maintenance which "substantially complies with specifications." Unfortunately, vendors can technically get out of this responsibility by changing the specifications.

For instance, when the software does not perform according to the agreement, a vendor may change the documentation to reflect the difference and blame it on a documentation error rather than the software. More commonly, vendors may fail to provide maintenance that keeps the product in step with changes in operating systems and hardware.

Recognize the "maintenance required" provision for what it is: annual rent. Often, vendors that do not want to give up this guaranteed annual revenue stream or allow customers to customize maintenance periods will restrict a company from using the software when maintenance fees are not paid.

An alternative is to agree on a length of time to pay for maintenance, with the understanding that afterward, your company can continue to use the software without a maintenance provision.

Auer is founder and president and Demboski is a senior consultant at International Computer Negotiations, Inc., a Winter Park, Fla.-based firm that assists companies in facilitating better deals and executing better contracts.

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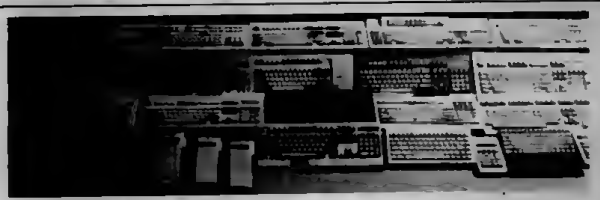

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Communication Network Architects, Inc. 1
Compaq Computer Corp. 1,16,109
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Computer Associates International, Inc. 20,57,69
Computer Intelligence/InfoCorp 8,53
Computer Power, Inc. 71
Computerland Corp. 109
Computer Sciences Corp. 110
Compuware Corp. 71
Comshare, Inc. 44,54
Concepts Dynamic, Inc. 7
Concord General Mutual Insurance Co. 57
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Corel Systems Corp. 52
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Data General Corp. 69
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Digital Equipment Corp. 6,8,25,49, 53,67,68,110

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Echo Logic 73
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Electronic Data Systems Corp. 61,67,109
Elms Information Services Group 68
Encore Computer Corp. 12
Enterprise Rent A Car Co. 68
Entex Information Services, Inc. 6,109
Epoch Systems, Inc. 55
Epson America, Inc. 16
Ernst & Young 6,8,77
Everex Systems, Inc. 1,28

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Fidelity Investments, Inc. 6
Fischer International Systems Corp. 14
Forrester Research, Inc. 67
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Freeport McMoRan, Inc. 25
Freightliner Corp. 54
Fujitsu Computer Products of America, Inc. 53

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Gartner Group, Inc. 1,12,109
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Integrated Device Technology, Inc. 8
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RadioMail Corp. 1
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Robert Half International, Inc. 79
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Santa Clara Valley Medical Center 6
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Shiva Corp. 41
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The DBT Group, Inc. 70
The Dun & Bradstreet Corp. 67
The Hertz Co. 67
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Wiltel 76
Wingra Technologies, Inc. 14
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WordPerfect Corp. 43,44,73
WorkGroup Technologies, Inc. 20
World Vision Canada 57

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XTree 16
XVT Software, Inc. 73
Xyplex, Inc. 65

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Zenith Data Systems, Inc. 1,10

Gainers / Losers

Percent

Commodore Int'l.	31.8	Data Switch Corp.	21.1
Zeos International, Ltd.	25.0	Cambex Corp.	-30.4
Personal Int'l. Inc.	22.0	Kendall Square Research	-14.2
Spectrum Software	20.0	Micron Technology	-14.1
Adaptec Inc.	16.0	VLSI Technology	-13.9
State of the Art	13.8	Parallan Computer	-13.1
Interlan Inc.	13.6	Micropolis Corp.	-12.9
US Robotics	11.6	Apunix Systems Inc.	-12.1

Dollar

Tandy Corp. (H)	5.25	Texas Instruments	-8.00
IBM	6.00	Micron Technology	-7.63
US Robotics	3.83	Motorola Inc.	-6.88
CompUSA Inc.	3.88	DSC Communications	-5.88
Centigram Communications	3.25	Lotus Development	-4.88
Intelligent Info. Systems	2.25	Autodesk Inc.	-4.88
Powersoft	2.00	Cabletron Systems	-4.38
Cisco Systems Inc.	2.00	Peoplesoft	-4.13

Commodore is poised to launch a game system called the CD32 to compete with Nintendo and its U.K. Kendall Square Research announced its next-generation KSR2 system but sank in reaction to legal problems. Investors filed several class action lawsuits after the company announced a loss for the last quarter.

Relational risks, rewards

Though the valuations are sky-high for Sybase, Inc. (SYBS) and Oracle Corp. (ORCL), both stocks may have room to grow.

Salomon Brothers, Inc. analysts John Jones Jr. and Theresa Lio were impressed with Sybase's new Replication Server technology, which beefs up the product's ability to handle mission-critical applications. The Replication Server synchronizes multiple copies of distributed data, providing two key benefits: Users gain fast local access to the distributed data, and a level of fault tolerance is provided in case one server crashes. Sybase announced revenue growth of 67% for the most recent quarter and underwent a 2-for-1 stock split.

Jones and Lio also noted in a recent report that Oracle 7.0 is gaining momentum. Oracle is moving aggressively into reseller channels as well, which may put the squeeze on rival Informix Corp. (IFMX). But Informix reported healthy growth last quarter. Progress Software, Inc. (PRGS) is another relational database management system vendor that is flying high on the market.

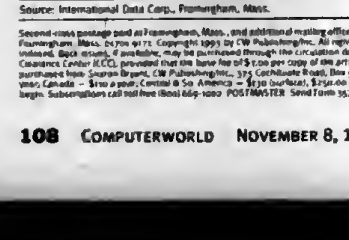
Of course, with many database issues already at high price/earnings multiples, there is some downside risk.

"The database guys are rich, and there's the chance of a price cut," said Curt Monash, publisher of the "Monash Software Letter." Monash said the safest of these stocks is Oracle. "They have the most other businesses [outside of the RDBMS market], and they are positioned at the high end, which is the last place a price cut would hit," he said.

—Derek Slater

The lion's share

Oracle is the leader in Unix systems, the bread-and-butter platform for "open" relational database vendors



1992 Unix RDBMS market share

Source: International Data Corp., Framingham, Mass.

Exch	52-Week Range			Nov 5 1pm	Vol Net Change	Vol Pct Change
Communications and Network Services						Off 1 1/16
OTC	40.00	19.63	3 COM Corp	31.63	1.25	4.1
NYS	91.13	63.38	American Info Techs Corp.	83.00	-1.63	-1.9
NYS	65.00	44.75	AT&T	56.00	-1.63	-2.8
OTC	4.44	0.75	Artel Communication Corp	2.75	-0.38	12.0
OTC	26.50	12.50	Banyan Systems Inc.	20.75	1.00	5.1
NYS	69.13	44.50	Bell Atlantic Corp	63.75	0.00	0.0
NYS	63.88	46.75	Bellsouth Corp (H)	60.00	2.63	4.2
NYS	14.75	4.75	Bolt, Beranek & Newman	12.63	-0.63	-4.2
OTC	18.50	9.50	Brooktrout Technology	10.50	0.25	2.4
NYS	119.00	66.75	Cabletron Systems	88.38	-4.38	-4.7
OTC	36.38	10.25	Centigram Communications	34.50	2.25	7.0
OTC	53.50	22.38	Chipcom Corp	46.00	1.00	2.1
OTC	58.25	32.75	Cisco Systems Inc	53.00	2.00	3.9
OTC	17.75	8.00	Compression Labs Inc	16.50	0.88	5.6
OTC	36.00	20.75	CrossComm	29.25	-2.50	-7.9
OTC	2.63	1.88	Data Switch Corp	1.88	-0.50	-21.1
NYS	19.88	12.38	Digital Comm Assoc.	18.63	0.00	0.0
OTC	12.75	3.63	Digital Systems Int'l Inc.	3.88	-0.06	-1.6
OTC	73.13	17.25	DSC Communications	59.75	5.88	9.0
OTC	9.50	4.75	Fibronix Int'l Inc.	6.25	1.13	22.0
OTC	24.00	8.75	Filenet Corp	18.25	0.25	1.4
OTC	4.38	1.50	Gandalf Technologies Inc.	3.38	0.38	12.5
OTC	2.06	0.69	Gateway Communications	0.81	-0.09	-7.1
NYS	15.75	4.25	General Datacomm Inds.	10.50	-0.50	-4.5
ASE	3.75	2.00	Go Video	2.31	-0.13	-5.1
NYS	39.88	32.88	GTE Corp	37.63	1.75	4.4
NYS	94.75	66.00	ITT Corp	90.88	-1.63	-1.8
OTC	29.88	17.19	MCI Communications Corp	27.00	-1.50	-5.3
OTC	6.50	1.50	Microcom Inc.	2.81	-0.31	-10.0
OTC	24.25	3.50	Netrix Corp	5.13	0.23	5.1
OTC	19.00	6.50	Network Computing Devices	8.00	-0.25	-3.0
NYS	13.63	5.38	Network Equipment Tech	9.88	0.25	2.6
OTC	20.13	8.00	Network General	14.00	-0.63	-4.3
OTC	15.75	6.88	Network Systems Corp	8.38	-0.50	-5.6
OTC	73.88	11.00	Newbridge Networks Corp	57.00	3.88	6.4
NYS	46.00	21.38	Northern Telecom Ltd	27.13	-1.38	-4.8
OTC	35.25	17.00	Novell Inc.	22.00	0.00	0.0
NYS	48.88	39.50	Nynex Corp	41.88	-0.25	-0.6
OTC	30.00	19.00	Octel Communications Corp	23.50	-1.00	-4.1
OTC	6.13	3.75	Oshmi Data Comm Networks	5.31	-0.44	-7.6
OTC	30.50	14.50	Picturetel Corp	18.25	-0.75	-3.9
OTC	11.50	3.63	Proteon Inc	5.75	0.25	5.0
NYS	38.88	17.75	Scientific Atlanta Inc	32.00	-2.75	-7.8
NYS	47.00	31.75	Southwestern Bell Corp	42.13	-2.13	-4.8
NYS	40.25	24.38	Sprint Corp	34.00	-2.00	-5.6
OTC	27.00	12.50	Standard Microsystems Corp.	21.00	0.00	0.0
OTC	19.25	10.00	Sysatcom Inc.	15.75	-0.75	-4.6
OTC	42.75	20.00	Synoptics Communications	24.75	1.00	3.6
OTC	9.88	2.88	Telebit Corp	7.63	-0.38	-4.7
OTC	17.88	4.88	Telematics Int'l Inc.	14.75	0.38	2.7
OTC	35.25	17.00	US Robotics	30.25	3.63	13.6
NYS	50.75	35.25	US West Inc. (H)	48.25	-1.63	-3.3
OTC	56.00	28.13	Wellfleet Communications	51.25	-3.63	-3.1
OTC	19.50	7.25	Xircom	15.75	-1.00	-6.0
PCs and Workstations						Off 6 1/2
OTC	5.56	2.50	Advanced Logic Research	3.25	0.00	0.0
OTC	65.25	22.00	Apple Computer Inc.	31.75	1.25	4.1
OTC	24.75	12.75	AST Research Inc.	20.75	0.00	0.0
NYS	9.25	2.50	Commodore Int'l.	8.13	1.00	32.0
NYS	69.38	39.75	Compaq Computer Corp (H)	65.63	1.75	2.6
OTC	49.88	13.50	Dell Computer Corp	22.00	1.88	9.3
NYS	69.75	56.50	Hewlett Packard Co	74.00	0.13	0.2
NYS	46.75	23.50	Silicon Graphics	40.75	-2.50	-5.8
OTC	41.00	21.13	Sun Microsystems Inc	24.88	-0.63	-2.5
NYS	46.75	24.63	Tandy Corp. (H)	46.25	5.25	12.0
.01C	7.00	2.50	Zeos International Ltd.	3.75	0.75	25.0
Large Systems						Off 2 1/4
ASE	8.75	4.38	Amdahl Corp	4.75	0.19	4.1
NYS	8.75	3.63	Convex Computer	5.13	-0.25	-4.7
OTC	5.38	2.75	Cray Computer	3.88	0.25	6.8
NYS	30.88	20.38	Cray Research Inc.	27.00	-0.38	-1.4
NYS	13.88	7.75	Data General Corp	9.38	-0.13	-1.3
NYS	49.25	30.38	Digital Equipment Corp	36.00	0.75	0.7
NYS	47.25	32.50	Harris Corp (H)	45.38	-0.50	-1.1
NYS	68.88	40.63	IBM	50.00	4.00	8.7
OTC	35.75	9.50	Kendall Square Research	13.63	2.63	16.2
OTC	141.50	93.00	Matsushita Electronics	131.30	3.00	2.2
OTC	21.75	12.75	Netframe	15.75	0.00	0.0
OTC	26.00	9.25	Parallan Computer	18.25	-2.75	-13.1
OTC	23.25	8.50	Pyramid Technology	14.00	-0.88	-5.9
OTC	24.00	11.25	Sequent Computer Sys	17.25	0.25	1.5
OTC	5.50	1.38	Sequoia Systems Inc.	4.88	0.38	8.3
NYS	41.25	20.75	Stratus Computer Inc	27.13	-2.13	-7.3
NYS	16.88	8.50	Tandem Computers Inc.	11.00	-0.13	-1.1
OTC	25.75	10.63	Tricord Systems	24.13	-0.38	-1.5
NYS	13.88	8.38	Unisys Corp	10.88	-0.63	-5.4
Software						Off 1 3/8
OTC	37.00	14.50	Adobe Systems Inc	19.00	-2.63	-12.1
OTC	25.25	11.75	Aldus Corp	21.00	-1.75	-7.7
OTC	11.25	5.50	American Software Inc	8.13	0.75	10.2
OTC	28.50	9.50	Ask Computer Systems	13.50	-0.38	-2.7
OTC	56.75	38.38	Autodesk Inc.	38.38	-4.88	-11.3
OTC	7.13	2.50	Bachman Info Systems	3.00	-0.25	-7.7
OTC	43.00	24.00	BGS Systems Inc.	25.50	1.00	3.8
OTC	64.13	38.75	BMC Software Inc.	46.13	-1.13	-2.4
OTC	28.25	20.38	Books & Babbage	26.75	0.25	1.0
OTC	34.00	12.75	Borland Int'l Inc.	16.88	0.38	2.2
OTC	5.00	2.25	CE Software	3.81	0.25	7.0
ASE	40.75	16.41	Cheyenne Software Inc.	32.00	-1.50	-4.5
OTC	19.30	8.75	ChipSoft	15.50	0.75	5.1
OTC	10.50	5.63	Cognos Inc (H)	9.00	-0.88	-8.9
NYS	40.75	16.50	Computer Associates (H)	37.80	-0.50	-1.3
NYS	6.88	2.13	Computervision Corp	2.75	0.00	0.0
OTC	34.25	19.75	Compware Corp	24.00	-2.00	-7.7
OTC	14.75	5.75	Comshare Inc	10.75	-0.25	-2.3
OTC	37.00	10.75	Cosell Corp	32.75	-2.00	-5.8
OTC	15.25	4.88	Easel Corp	5.13	-0.38	-6.8
OTC	25.25	15.75	4th Dimension	22.00	-2.25	-9.3
OTC	19.25	5.25	Frame Technology	8.75	0.00	0.0
OTC	17.50	8.00	Group I Software	10.25	0.00	0.0
OTC	35.25	14.00	Gupta	15.00	-0.75	-4.8
OTC	12.00	4.88	Hogan Systems Inc	10.88	-0.25	-2.2
OTC	27.75	11.25	IMRS	24.75	-0.50	-2.0
OTC	44.75	26.50	Information Resources	35.50	-2.00	-5.3
OTC	27.25	13.38	Informix Corp	16.75	-2.13	-11.3
OTC	14.00	8.38	Intergraph Corp.	10.75	-0.38	-3.4

Exch	52-Week Range			Nov 5 1pm	Vol Net Change	Vol Pct Change
OTC	13.63	4.88	Interlan Inc.	6.25	0.75	13.6
OTC	15.25	4.75	Intersolv Inc	8.00	0.25	3.2
OTC	18.75	2.75	Knowledgeware Inc	15.00	-1.00	-6.3
OTC	54.75	15.38	Legent Corp	23.75	-0.38	-1.1
OTC	50.75	18.75	Lotus Development	43.00	-4.88	-10.1
OTC	22.00	6.25	MathSoft	5.63	0.25	4.7
OTC	21.25	6.50	McAfee Associates	6.13	0.38	6.3
OTC	11.63	2.50	Mega Software	6.50	0.00	0.0
OTC	12.88	7.13	Mentor Graphics	11.88	-0.13	-1.0
OTC	46.00	19.75	Micad Focus	22.63	0.00	0.0
OTC	13.25	4.38	Microanalytx Inc.	7.75	-0.81	-9.5
OTC	98.00	70.38	Microsoft Corp	78.38	-1.50	-1.9
OTC	64.63	18.88	Oracle Corp.	58.75	-0.38	0.6
OTC	64.73	22.50	Parametric Technology	38.00	-2.00	-5.0
OTC	40.50	22.50	Peoplesoft	34.13	-4.13	10.8
OTC	7.13	3.88	Phoenix Technologies	4.00	0.00	0.0
OTC	40.00	22.00	Powersoft	34.00	2.00	6.3
OTC	39.75	13.50	Platinum Software	24.38	1.00	4.3
OTC	25.00	7.25	Platinum Technology	8.75	0.63	7.2
OTC	81.50	32.25	Progress Software Corp	54.00	-1.25	-2.5
OTC	6.75	1.94	Quarterdeck Office Sys	2.19	-0.15	-5.4
OTC	32.00	16.00	Ramtron Technologies Inc.	21.00	-0.25	-1.2
OTC	11.38	4.25	Rasterops	7.13	-0.88	10.9
OTC	15.25	5.38	Ross Systems	8.00	-0.63	-7.2
OTC	28.75	16.63	Sapiens Int'l. Corp N.V.	25.25	-1.63	-6.0
OTC	14.50	3.38	Software Publishing Corp	6.13	0.00	0.0
OTC	12.75	4.13	Softronic Toolworks Inc	13.88	1.63	10.3
OTC	2.75	0.75	Spinnaker Software	2.25	0.38	20.0
OTC	13.75	6.00	State of the Art	9.75	1.13	13.8
NYS	33.63	17.63	Sterling Software Inc. (H)	30.75	-1.25	-3.9
OTC	21.63	9.63	Structr. Dynamics Research	15.00	0.63	3.8
OTC	17.50	10.25	Sybase Inc.	67.75	-3.50	-4.9
OTC	20.00	9.25	Symantec Corp	10.13	-1.88	-9.4
OTC	25.50	10.00	System Software Assoc.	14.75	0.00	0.0
OTC	6.50	2.75	Timeplex Corp.	5.25	-0.38	-6.7
OTC	24.38	13.00	Viewlogic Systems	22.50	-1.25	-5.3
OTC	23.50	5.38	Walker Interactive Systems	8.88	0.11	1.4
OTC	3.19	0.84	Wordstar	1.31	0.00	3.0
Semiconductors						Off 1 3/8
NYS	32.88	14.25	Advanced Micro Devices	19.25	-0.63	-3.1
NYS	28.00	11.63	Analog Devices Inc.	20.00	-1.25	-5.7
OTC	30.63	14.00	Atmel Corp	26.13	-1.63	-5.9
OTC	6.25	2.75	Chips and Technologies	3.25	-0.25	-4.5
OTC	39.75	13.00	Cirrus Logic	33.63	-1.38	-3.9
NYS	18.75	8.63	Cypress Semiconductor Corp.	11.75	0.00	0.0
NYS	19.00	11.13	Dallas Semiconductor	15.12	1.50	9.0
OTC	74.50	33.38	Intel Corp.	80.00	-3.75	5.9
NYS	19.75	8.38	LSI Logic Corp.	13.63	-0.88	-6.0
OTC	26.75	13.66	Lattice Semiconductor	15.25	0.00	0.0
NYS	63.63	16.25	Micron Technology	39.88	-7.63	-16.1
NYS	107.00	47.38	Motorola Inc.	38.75	6.88	6.5
NYS	21.75	10.13	National Semiconductor	15.00	-0.88	-5.2
OTC	15.75	6.50	Sierra Semiconductor	7.50	-0.50	-6.3
OTC	52.75	25.75	Synopsys (H)	48.75	-3.00	-5.8
NYS	84.75	45.13	Texas Instruments	58.25	-8.00	12.1
OTC	18.88	6.00	VLSI Technology	11.88	-2.25	-15.9
OTC	14.38	6.38	Weitek	9.88	-0.13	1.3
ASE	9.63	3.63	Western Digital Corp	7.63	-0.13	-1.6
OTC	34.50	18.25	Xilinx	30.38	-1.38	-3.5
OTC	40.75	18.00	Zilog Inc.	36.75	-2.00	-5.2
Peripherals: Entry Level						Off 3 1/4
OTC	24.25	9.75	American Power Conversion	20.75	1.50	6.7
OTC	22.75	15.50	Banctec Inc.	20.00	0.50	2.6
OTC	18.00	3.50	Cambex Corp.	4.63	-1.19	-20.4
ASE	18.38	3.88	Cognitronics Corp.	6.00	0.25	4.3
NYS	25.38	9.00	Conner Peripherals	11.50	-0.50	-4.2
OTC	58.50	17.25	Creative Technologies Inc.	25.75	1.50	6.2
OTC	30.75	6.50	Data Race Inc.	7.75	-0.38	-4.6
ASE	13.25	7.50	Dataram Corp	9.63	-0.75	-7.2
NYS	19.00	6.34	EMC Corp.	12.88	-1.25	-8.7
OTC	10.38	5.25	Emulex Corp.	6.25	-0.25	-3.8
OTC	19.38	14.00	Evans & Sutherland	17.63	-1.25	-6.7
OTC	20.63	7.50	Exabyte	15.75	-0.13	-0.8
OTC	34.00	10.41	Intelligent Info. Systems	27.38	2.23	9.0
OTC	8.88	2.50	Iomega Corp	3.25	-0.38	10.3
OTC	14.25	5.75	IPL Systems Inc.	7.50	-1.00	-11.8
OTC	24.00	13.75	Komag Inc	15.38	-0.38	-2.4
OTC	19.63	4.38	Maxtor Corp.	6.00	0.13	2.1
OTC	38.00	5.75	Micropolis Corp.	6.75	-1.00	-12.9
NYS	117.00	97.25	3M Corp	103.88	0.25	0.2
OTC	8.00	4.00	Printronix Inc.	7.25	0.00	0.0
NYS	17.25	7.50	QMS Inc.	10.63	0.13	1.2
OTC	12.88	9.38	Quantum Corp	12.38	-0.75	-2.0
OTC	7.50	3.13	Radius Inc. (H)	6.50	-0.25	-3.7
NYS	17.75	11.75	Recognition Equipment	15.25	-1.38	-8.3
OTC	13.88	3.63	Rexon Inc.	4.13	-0.25	-5.7
OTC	23.00	13.13	Seagate Technology (H)	21.00	0.75	3.4
NYS	45.00	18.00	Storage Technology	24.38	0.63	2.6
NYS	27.88	17.63	Tektronix Inc.	23.13	0.00	0.0
NYS	88.88	69.88	Xerox Corp	79.50	0.75	1.0
Services						Off 1 1/16
NYS	4.38	1.13	Allegron Inc.	2.88	0.00	0.0
NYS	33.75	14.88	American Mgmt. Systems	21.63	0.00	0.0
NYS	4.75	2.38	Analogic Inc.	3.63	0.38	16.0
NYS	23.88	13.66	Analysts Int'l	17.00	-0.50	-2.9
NYS	56.13	46.88	Auto Data Processing	53.13	-2.38	-4.4
NYS	19.88	13.00	Ceridian Corp	17.88	-0.73	-4.0
NYS	21.00	13.13	Comdisco Inc (H)	18.75	-1.63	-8.0
OTC	13.38	5.16	Computer Horizons	11.88	0.13	1.1
NYS	99.00	70.00	Computer Sciences	93.63	0.88	0.9
NYS	8.25	6.00	Computer Task Group	6.88	0.00	0.0
NYS	37.25	19.00	CompUSA Inc.	23.75	2.88	12.6
OTC	14.11	8.00	Control Data Systmes Inc	9.38	0.13	1.4
OTC	15.75	2.00	Corporate Software (H)	15.13	-0.38	-2.4
OTC	12.75	6.63	Engineer Discount Software	7.50	0.25	3.4
NYS	35.88	26.00	General Motors E (EDS)	30.50	0.00	0.0
OTC	25.00	13.25	Inacom Corp.	17.13	-0.13	-0.7
OTC	26.38	8.13	Intelligent Electronics	21.38	-0.50	-2.3
OTC	17.00	9.63	Wensel	14.50	1.13	7.2
OTC	29.75	6.50	Micronage Inc. (H)	26.25	-2.75	-9.5
NYS	31.00	21.88	Paychex (H)	35.25	0.88	0.0
NYS	87.25	21.63	Policy Management Sys.	27.13	-1.25	-4.4
NYS	43.63	24.13	Reynolds and Reynolds	40.25	1.25	3.2
OTC	24.00	13.38	SEI Corp. (H)	21.25	-0.25	-1.1
OTC	26.00	17.00	Shared Medical Systems	22.63	-2.38	-9.3
OTC	12.63	5.75	SHL Systemhouse	9.50	0.00	0.0
OTC	30.75	20.00	Software Spectrum Inc	21.50	-2.38	-9.9
OTC	42.75	26.25	Sungard Data Systems	36.50	-0.75	-2.0

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Changing channels

Resellers eye outsourcing rescue

By Michael Fitzgerald

■ While the bulk of PC systems sold to corporate America still go through a reseller at some point, that is no longer enough to ensure profitability. A beleaguered channel is therefore pushing as hard as it can to metamorphize into a different and more profitable role as an outsourcer.

However, it may face an uphill battle. Although the handful of users who currently outsource through resellers seem pleased, others appear reluctant to give it a try. But when they do, it may signal the end of traditional, one-stop outsourcing.

This latest attempt at repackaging the channel is driven by the squeeze on reseller profitability today, from plummeting prices and margins to direct selling from vendors and product backlog.

Focusing down

Reseller executives do not see themselves directly challenging traditional outsourcers such as Electronic Data Systems Corp. or Andersen Consulting. Rather, the new "resourcers," as they might be called, would focus on the niche areas the giant outsourcing companies are less likely to pursue — PC implementation, service or support, for example.

Outsourcers "can't afford to compete at the low end," said Ed Anderson, chief operating officer at CompuCom Systems, Inc. in Dallas. "[They] represent the old outsourcing model, where it was 'Let us do everything for you.' We do things a la carte," said Alan Hald, vice chairman and co-founder of MicroAge, Inc., a billion-dollar reseller chain in Phoenix.

It may take time for resourcing to catch on, as evidenced by Computerland Corp.'s sale of its franchise and distribution operation to Merisel, Inc. [CW, Sept. 27]. Computerland's efforts to join the PC outsourcing business strained its cash flow, sparking the sale.

Unfazed, reseller executives point to studies by consultancies such as Gartner Group, Inc. that show that hardware and software purchase prices represent less than 20% of the actual cost of implementing a PC. Gartner estimated that support personnel, maintenance time and other costs ratchet up to form the rest of an estimated $40,000 cost per PC over a five-year period.

Outside business

Resellers are aggressively seeking outsourcing contracts to broaden their revenue stream

Company name	Revenue from outsourcing Now	1995	Key accounts
Entex	6%	10%	Eastman Kodak, ITT Hartford Life Ins. Co., Microsoft
Computerland	20%	33%	Microsoft
MicroAge	Declined to give numbers		Cummins Engine Co., Consumers Power Co.
CompuCom	<10%	Expects to expand significantly	Southland Corp., Microsoft

According to Computerland Chairman William Tauscher, as corporate users discover how much PCs cost, they are reassessing how they manage them. "What it costs to manage [PCs] is growing, and it's a problem," he said.

The question is whether users will find outsourcing to be the solution. Not many reseller customers currently do.

John McKenna, president of reseller Entex Information Services, Inc., said only 30 Entex customers use its ontsourcing services, although they represent 35% of Entex's sales when their hardware purchasing is thrown in. Resourcing is Entex's most rapidly growing area of business, and McKenna said he expects that a year from now, Entex will have doubted its number of outsourcing customers.

New but welcome

"The basic problem is that customers are not conditioned to pay for services on personal computers," said Lee Levitt, an analyst at International Data Corp. (IDC) in Framingham, Mass.

Still, users who have outsourced some or all of their PC management to resellers seem pleased.

Eastman Kodak Co., whose landmark outsourcing deal with several vendors, including Entex, is up for renewal next year, fully intends to continue outsourcing its PC maintenance, configuration and help desk support, according to Vaughn Hovey, director of information processing services.

"We don't have to carry inventory, we have access to an [Entex] customer executive council, and the training and support they do is better than we could do," Hovey said. He also cited employee cost savings. Kodak originally transferred 50 employees from its PC group to an outsourcer; Entex has more than double that number at Kodak.

The Star Tribune Co. in Minneapolis saves direct costs on personnel by outsourcing labor-intensive tasks such as PC configuration and maintenance to local resellers, as well as training in generic software programs such as WordPerfect Corp.'s WordPerfect.

Robert Lewis, the Tribune's systems leader, said outsourcing has become more important as the Star Tribune has put essential operations, such as elements of its classified advertising and its subscriber database, on a LAN. "We don't have the time to load software on PCs — it's not a good use of our ingenuity," he said.

No cure-all

Even if successful, resourcing may not be a panacea for the channel. Lee Levitt, an analyst at IDC, says that even with services figured in, the traditional reseller channel will see revenue grow only from $17 billion to $20 billion in 1993 and to $23 billion in 1997.

Name changing

Diversity recently led the Better Computer Dealers to adopt a new name, the Computing Technology Industry Association.

Savings to be had

Even Microsoft Corp. has outsourced some of its PC operations. Entex and Computerland split a list of value-add services within Microsoft, including technical service, repairs and PC deployment.

"We can handle a much higher volume of PCs with a much lower internal overhead than if we did not have them on site," said Jeffrey Patton, corporate procurement manager at Microsoft.

"What we find is that generally, [outsourcing] costs customers about two-thirds of what they would pay for running their own PC IS services," McKenna said. Hovey disputed this number, saying Kodak has not saved one-third of its costs, though it did save money and deems the effort worth it.

Still, even the most optimistic resellers acknowledge that as in enterprise outsourcing, corporations frequently balk at the idea of letting a third party handle items such as training, phone support and PC management. And given the reseller channel's mixed history of providing corporate support, it could take some time to win over corporate accounts.

If at first you don't succeed . . .

Resourcing is not the first attempt by the reseller channel to remake itself. Buffeted for commodity pricing and vendor competition, resellers have long sought to diversify.

They first ventured into the services and support arena after the arrival of clones forced down prices, kicking PCs into the commodity market. Those efforts met with mixed success, depending on the extent to which resellers followed through on support commitments.

The more recent year-old price war has helped make the PC outsourcing route compelling. Resellers today find themselves in the business-threatening position of having both their selling prices and profit margins on boxes dropping dramatically and simultaneously.

The reseller mainstays — IBM PC Co., Apple Computer, Inc. and Compaq Computer Corp. — led this trend, cutting prices more than 30% in the last year, while also cutting once-generous dealer margins.

"You can outrun that trend with volume, but that's kind of like outrunning lava," said Bruce Stuart, president of Channel Corp., a consultancy in Vancouver, British Columbia. The other way to beat it, he said, is to sell other things to make money, such as services, training and integration, all of which are part of the outsourcing strategy at places such as MicroAge, Computerland and Entex (the latest incarnation of Businessland). But the volumes may not be there, period.

Also threatening is the fact that the PC Co. and Compaq have aggressively expanded their channels, going into direct sales, mail-order, catalogs and warehouse clubs while also starting to offer custom configurations that otherwise might be done by resellers.

This in turn is compounded by a series of seemingly endless product shortages. Even in the last 18 months, a period of double-digit market growth, resellers were hurt when vendors were unable to supply them.

As a result of these factors, IDC predicts stagnant unit sales through the traditional channel and a drop in overall market share, from 43% this year to 39% in 1997. And even outsourcing may not save some sectors of the channel. — *Michael Fitzgerald*

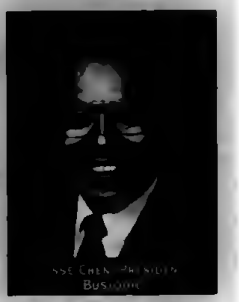
Wysiwyg

What is your BEST/WORST job interview experience?

▲ Extended Memory

"I met with Judith Hurwitz shortly after I became CEO of Micro Decisionware. I discovered that we were old friends from my days as IBM's vice president of Midrange Systems. The really great news was that I still had credibility with her despite my past efforts to convince her that the IBM 9370 was going to be a real winner in departmental computing. . . ."

Tale of the ► Cocky Candidate



"One candidate was making statements about almost everyone in the industry and how they were doing things wrong. He said that with his help, any company could become the superpower of the industry. He went on to tell how all of his previous employers underappreciated his experience. In this case, I did the same as the rest of the industry — passed on this one!"

▼ Picking up the Pieces

"One interviewee for a product marketing job came into Toronto anxious about relocating and jet-lagged. We had recently won an award for Winfax, and the interviewee picked up the award, dropped it and proceeded to turn scarlet from embarrassment. I spent most of the time calming the person down. The interviewee got the job, but we don't discuss awards."

The 5th Wave *by* Rich Tennant

"It was at this point in time that there appeared to be some sort of mass insanity."

Inside Lines

Now you tell me!

There's talk around the Valley that Apple's ex-CEO, John Sculley, is having second thoughts about his new position as head of Spectrum Information Technologies. Despite good core technologies that allow portable computers to transmit data via cellular telephone networks, Spectrum has been involved in several court actions. "Sculley didn't do his homework on this one, and he's going to suffer for that," said one source. Dae Chang, director of marketing at Spectrum, dismissed the rumors as ridiculous. Chang quoted Sculley as saying, "I'm more excited than ever about the opportunities at Spectrum."

Why so shy?

Michael Spindler's reign as Apple's CEO is already marked by secrecy and issue-dodging. His keynote at this week's MacIS conference was suddenly declared off-limits to the press. Spindler has said he won't speak if there are any press people in the room and will stop speaking if any are discovered. During a brief Q&A period after his keynote at last month's Seybold publishing show in San Francisco, he dodged a question about Apple's future directions with a curt "this is not the forum to talk about those matters." Huh? If not in front of thousands of users, then where?

The line forms to the left

Word circulated last week that the $56.5 billion Philip Morris conglomerate is considering outsourcing its information utility. According to Merrill Lynch analyst Stephen McClellan, if the company did a total outsourcing deal, it would be "one of the biggest in history, if not *the* biggest." General Dynamics Corp.'s $3 billion deal with Computer Sciences Corp. and McDonnell Douglas' similar-size deal with ISSC are considered the granddaddies of all outsourcing deals. By the way, Philip Morris is currently without an MIS director.

The ax man cometh

Unisys Corp., which has cut its staffing to 53,000 after reaching a high of 120,000 in 1986, is planning to ax at least 200 engineering positions at its Great Neck, N.Y., Unisys Government Systems Group (formerly Paramax) facility, according to several employees there who also said they anticipate further cuts down the road.

All on board

Borland plans to announce at Comdex/Fall '93 that Office 2.0 will add support for Borland's Object Exchange facility to WordPerfect 6.0, according to sources close to the company. The two firms reportedly plan to outline long-term plans for using Borland tools as a common macro language to drive all suite applications.

Does Berlitz do Intel?

Digital plans at Comdex/Fall '93 to demonstrate software for translating Win32 applications written for Intel's microprocessors to run on its Alpha AXP architecture under Windows NT. However, Digital has not decided whether the translator should be marketed to software vendors or end users, said Michel Gambier, its director of Windows NT evangelism. That issue should be resolved within the next couple of quarters, he added. The translator would provide less performance than a native Alpha port, but Digital hopes it will let applications run faster than on Intel's Pentium chip.

Faces in the crowd at Digital's annual meeting last week included Jack Smith, former senior vice president, and Domenic LaCava, another expatriate who until recently had been heading the Power PC-affiliated PowerOpen Association. Smith said he has spent his year off scuba diving, taking flying lessons and starting a home construction business; he is still mulling the idea of "getting back in the swamp" of the computer industry, he added. LaCava was mum about his plans. Phone, fax or CompuServe News Editor Alan Alper with news tips at (800) 343-6474, (508) 875-8931 or 70537,2413, respectively. Or try Computerworld's 24-hour voice-mail tip line at (508) 820-8555.

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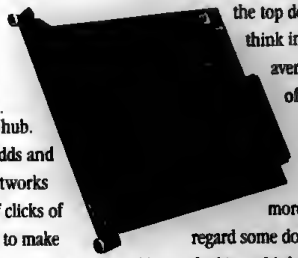
We were the first to introduce a multi-protocol, multi-network intelligent switching hub. Suddenly, it became possible to run up to 3 Ethernet, 7 Token Rings or 4 FDDI networks, software configurable, in a single hub.



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We were the first to put Port Switching into an intelligent hub. With it, you can do moves, adds and changes, within or across networks or segments with a couple of clicks of a mouse. Without it, you get to make trips to the wiring closet and move cables. A lot of trips.

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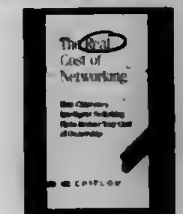

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